

# Audubon

JULY-AUGUST 1954

Magazine

FIFTY CENTS



**THREATS TO OUR NATIONAL PARKS!**

(See Page 174)



**FARIDA WILEY** is assistant chairman of the Department of Public Instruction at the American Museum of Natural History. For many years she has conducted natural science field trips sponsored by the Museum, and is an instructor at the Audubon Camp of Maine. Miss Wiley is the author of "Ferns of Northeastern United States", and compiler of "John Burrough's America" and "Ernest Thompson Seton's America."

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Volume 56, Number 4, Formerly BIRD-LORE

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## CONTENTS FOR JULY-AUGUST 1954

Letters	147
Can We Keep Our Outdoor Areas? by A. Starker Leopold	148
At Home with the Allen's Hummingbird by Charles and Viola Anderson	152
Woodland Treasure by John T. Cunningham	154
That "Bargain" in Binoculars by Henry Harford	158
Wildlife Tragedies on the Highways by Henry Marion Hall	160
Off with the Old—On with the New by Joy Buba	163
A Picture Story: The Barn Swallow in the Midwest by Gladys Emerson	164
Leaves Three, Let It Be! by Ken Legg	168
Nature in the News	171
Unpredictable Bachman's Warbler by Alexander Sprunt, Jr.	172
Threats to Our National Parks by Conrad L. Wirth	174
British Birds Before the Microphone by Gordon M. Strutt	180
How to Attract Birds by Ellen Torelle	182
Book Notes by Monica de la Salle	184
Children's Books by Dorothy E. Shuttlesworth	188
Your Children by Shirley Miller	190

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## Letters

### Common Names for Subspecies?

As a member of the teaching profession in ornithology, I should like to add my comments to those of Roger Peterson in his recent article (*Audubon Magazine*, March-April 1954, pp. 54-55) on English or other vernacular names for subspecies of birds. It seems self-evident to me that a bird *species* is clear, defined, and apparent to the field observer. A species has validity in nature, and as such has been given a common name wherever human beings occur to observe it, whether in North America or in New Guinea. With classes of students in the field or in the museum, it at once becomes apparent that a red-winged blackbird is a red-winged blackbird, either in Connecticut or the Rio Grande Valley of Texas, and as such deserves only the single English name.

Of course, certain well-marked subspecies of birds occur in the United States, and these have common names in spite of the opinions of ornithologists. An Ipswich sparrow is clearly recognizable from a Savannah sparrow. The same can be said for the dark and light seaside sparrows of Florida, and horned larks.

To give English names to every subspecies of bird is bad enough, but reaches the heights of absurdity when translated into another language as has happened in the "Distributional Check-list of the Bird of Mexico," where the American authors have attempted to give vernacular names in Spanish to every subspecies. One can only hope that the next edition of the A.O.U. Check-list of North American birds will give common names to species only, except in such rare cases where clearly defined and field-recognizable subspecies exist.

S. DILLON RIPLEY

Yale University  
New Haven, Connecticut

### Cameron Birding Is Defended

I have just read the letter by Leonard Hall in the May-June issue concerning his trip to the Sabine Refuge. I am sorry that he had such a disheartening trip. However, I wish to assure the readers of *Audubon Magazine* that his report leaves an erroneous impression of the birding possibilities of the Cameron area.

It is not clear from his letter just when Mr. Hall visited the refuge. Any visitor during November through February can easily enjoy the thrill of seeing thousands of blue and snow geese in the vicinity of the refuge headquarters.

AUDUBON MAGAZINE



The "trick" is to be there in late afternoon as they converge to their resting areas (conveniently overgrazed by the cattle) after feeding all day in the vast marshes.

It is unfortunate that Mr. Hall did not continue his trip east from Cameron for he missed the best birding areas. There is a good paved road from Cameron to Creole, but the good areas are the front beach just southeast of Cameron and the marsh edge on a gravel road which runs parallel to but south of the paved road. Birding is also good from Creole north to the intracoastal canal.

The Cameron Hotel is still in operation. Mrs. Faulk at the hotel is well acquainted with the Louisiana birders who visit Cameron at regular intervals. Any visitor would do well to stop at the hotel to see if any other birders happen to be around.

Lastly, I wish to point out that Cameron is not properly described as unproductive, despite the inroads of civilization. The 1953 Christmas Count yielded 153 species. The Louisiana Ornithological Society recently held a field trip there (in April). On a day which all conceded to be "dull" for Cameron, we chalked up some 120 species. Try again, Mr. Hall, and better luck!

HORACE H. JETER  
Shreveport, Louisiana

#### A Yellowthroat at a Window

On May 17, 1953, I had an amazing experience. About 10:30 p.m., I was weaving at my loom which is set up beside a window. Over the loom I have a strong light that shone out the window under the blind which was raised about six inches. Suddenly I heard a fluttering against the window pane. Thinking that it was caused by a large moth, I raised the shade and looked out. The fluttering ceased and I saw nothing. I stepped into the next room where there is a light next to the window and again heard a fluttering against the window pane there. As the blind was up I was able to see clearly. A male yellowthroat was fluttering against the window! Since I feared that he would injure himself I took a quick but careful second look, turned out the light and pulled the shade, at which the fluttering ceased. I hoped the little fellow went to his roost, where any respectable bird should certainly be at 10:30 at night.

Can you offer any explanation of this bird's behavior?

FLORENCE T. HUBBARD  
Bearsville, New York

Editors' Note: This bird was undoubtedly a migrant, because most, if not all, of our warblers migrate at night,

which is the reason Miss Hubbard saw it at her window after dark. Ulster County, where she lives, is not far north of New York City, and many years of spring records here show that northern yellowthroats reach the peak of their spring migration about the middle of May, and some are still passing through here to more northern nesting areas up to the middle of June.

Although we cannot tell Miss Hubbard positively why the bird came to her lighted window, we are rather sure that, like the moth that she compared it with, it was powerfully attracted by the strong light that she uses beside her loom, which was shining under the raised blind out into the night. We think the attraction of her light for the bird is proved by the fact that when she turned out the light and pulled down the shade, the fluttering of the bird at her window ceased.

#### What Happened to Snobber?

For some time I had hoped that you would publish a sequel to "Snobber." I gave the article to many children to read and many of them remember and ask if anything more is known about what happened to Snobber.

MRS. PARKER C. REED  
Lexington, Massachusetts

Editors' Note: Many of our readers will remember Edwin Way Teale's article, "Snobber—Sparrow de Luxe," published in the November-December 1944 issue of *Audubon Magazine*. It is a true account of the companionship between a New York City boy, Bennett Rothenberg, and a young "English," or house sparrow; how he raised the bird, and even coaxed it to fly. (Reprints of this article, at 10 cents each, are still available from our Service Department.) One of the most interesting facts about their relationship was the complete freedom that the boy gave the sparrow—it came and went as it pleased, through the open window of the Rothenberg apartment. Recently, in response to Mrs. Reed's query, we called the Rothenbergs. They told us that Snobber had lived for about two years, and then had died—cause unknown.

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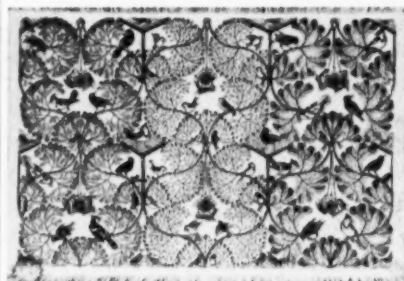


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# Can We Keep Our Outdoor Areas?

**"Saving the basic facilities for public recreation through the long period of social maturation . . . will continue to be . . . our primary task."**

By A. Starker Leopold\*

IN THE evolution of a social community—from wilderness, through frontier status, to established rural and urban patterns, and finally to mature culture—our views toward the use of natural resources necessarily must evolve concurrently.

At early stages in this process, resources are drawn upon freely and without restraint by the individual, for they seem to be limitless. The only visible problem is organizing the machinery of exploitation. Thus in our frontier, the tearing up of native vegetation to make way for farms was natural and logical as homespun breeches. So also was the slaughter of wild game to sustain the embryonic settlements. Retrospective moralizing about the supposed misdeeds of our ancestors reflects a complete lack of appreciation of the problems they faced. Had you and I been there, we should certainly have acted in much the same manner.

ONLY after the frontier stage has passed does competition for resources arise. And at that point the rights and interests of the individual begin slowly, step by step, to be subjugated to the rights and interests of the community. Consider the forest for example. Half of North America was in forest. A few trees were needed to build cabins, or to make bridges or mine props, or later, railroad ties. The rest were in the way. The most industrious member of the community was the man who slashed, burned, and cleared away his forest first. But as the cities grew and the railroads spun their web over the countryside, a tree assumed value—

first a cash value to the owner and secondly a community value to those who needed lumber in the city. Much later a new value was recognized—namely, that trees on the hillside held back floodwater and silt from the farms in the valley. A forest policy followed appreciation of the social value of trees. The government itself took over huge blocks of forest land and began managing the stands for social benefits. Now private lumber interests are starting to manage their holdings, in part because it is now profitable, but also because government policy strongly encourages and aids private forest management on a sustained yield basis.

A parallel shift of viewpoint may be traced in the national policy toward agricultural soils, coal and oil, wild game, or practically any other resource. But it is characteristic in the evolution of land policy that resource problems are usually allowed to become more or less critical before they are socially recognized. And then, government action when it is finally taken may precede full public response by an appreciable period. Earlier viewpoints and values always linger on into each succeeding era. At any given time, then, we are anywhere from 20 to 50 years behind where we should be, ideally, in our resource program.

With this sequence in mind, I should like to explore with you the evolution of our thinking on one type of resource problem of particular interest to us all, namely, supplying the public demand for outdoor recreation. It is a problem whose significance we think we recognize now but the import of which may assume much greater proportion 50 years hence.

In frontier times, of course, outdoor recreation as we know it today

was not recognized at all. Camping and wilderness travel were part of the everyday business of living. So were hunting and fishing. The idea that these activities were sport did not enter anyone's head. But as the villages grew to cities and the cities spawned or drew in from the country an ever-increasing proportion of the population, the age of the weekend camper was born. The hectic monotonous pace of modern communal living has placed a high premium on the vacation out-of-doors. Today our citizens swarm to the country for hunting, fishing, and general outings. There is no denying the social significance of this phenomenon.

BUT the same growth of population which made outdoor recreation desirable has shrunken the facilities for supplying it. Look at the state of California as an example. With a current population of 12,000,000 people, we are having serious difficulty meeting the demands for recreation. There were 1,800,000 hunting and fishing licenses sold in the state last year. But the places to hunt and fish are getting scarcer each year. On private lands there hardly is such a thing any more as free access in pursuit of fish and game. And on public lands the crowds are so great as materially to reduce the pleasure of outdoor experience. Public camps during the summer, or on opening days for trout or deer, are a bewildering tangle of tent ropes, trailers, and tin cans. Supplies of game and fish are dwindling, locally at least, under the pressure of rod and gun. Here is an important social problem. It is recognized by most administrative agencies and by conservation organizations, but society at large is not ready yet to cope with it. We are in that period of lag between emergence of a resource problem and its general acceptance as something that needs attention.

Consider the treatment of the land-administering agencies by Congress. All three of the services primarily concerned with federal lands—Forest Service, Park Service, and Bureau of Land Management—are limping along on paupers' budgets in this era

Turn to Page 150

\* This address by Dr. Leopold, of the Museum of Vertebrate Zoology, University of California, Berkeley, was presented at the Audubon Spring Conference, La Honda, California, April 3, 1954.

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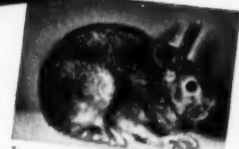
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of deficit-spending running into the billions. And especially low are budgetary items concerned with wildlife or recreation. The Forest Service has no money for wildlife management and practically none for maintaining campgrounds or other recreational facilities. The Park Service is in a like fix. The public domain under the Bureau of Land Management has been all but handed over to the livestock interests to operate as a semi-private range, a fate that very nearly befell the national forests as well.

**CONFLICTS** of all sorts between recreational interests and the so-called "economic" interests—grazing, lumbering, agriculture, and mining—are almost universally resolved in favor of the latter. Power dams and water storage reservoirs are encroaching willy-nilly in areas of high recreational value. The current Echo Park controversy is but one example—last year it was Glacier View and before that the Columbia basin where the salmon were sacrificed to the dam builders.

In agricultural areas, the efforts of the Fish and Wildlife Service and the California Department of Fish and Game to maintain even the bare minimum of marshland needed to sustain the wintering waterfowl populations is constantly being thwarted by farm groups. The critical Tule-Klamath Refuge along the California-Oregon border is being nibbled down by the Bureau of Reclamation, with strong farm support, to supply a few more farms that will help fill the government warehouses with surplus agricultural products. Recent efforts to acquire critical refuge lands in the Central Valley likewise were stopped with ease by a few influential farmers. And so we have a tremendously important recreational resource—the waterfowl population of the Pacific Flyway—being barely sustained on a tenuous basis for lack of strong public support.

The usual reply to our cries of anguish over this state of affairs is that it is too bad, but recreational frills inevitably must give way to the inexorable advance of civilization. Such a view never fails to raise my hackles. I want to know, *why* is it inevitable? I want to know further, what is civilization? Is the measure of culture to be the number of mechanical gimmicks installed in each household or the proximity of

each taxpayer to a drive-in theater? We fight for a 40-hour week to give all Americans more leisure. Leisure for what? To watch Mickey Spillane on television? No, I don't really believe we are so crass. Americans as a group are demonstrating by their individual actions that they recognize types of leisure activities that are culturally, morally, and bodily beneficial. The very increase in hunters, fishermen, and campers that I mentioned as a problem is manifestation of this. So is the great recent upsurge of skiing, backpacking, bird-watching, and a host of other healthy pursuits. Outdoor recreation, as part of the American way of living, is here to stay. It is apparently an essential corollary to urban living. But for the moment we are in the awkward interim where public opinion is catching up to the fact that the recreational facilities, on which they are more dependent every day, are running out.

**BUT** it will catch up. I simply cannot believe that anything of such vital personal interest to so many citizens will be lost by default. The realization is coming, I think, that in many cases of direct conflict between recreational and economic interests, the public welfare will be better served by favoring the former. On many of the national forests, for example, I confidently predict that recreation will come to be recognized as the most important ultimate use, other than water yield. This is true already on some forests located close to centers of population, the Inyo in southern California being a case in point. The value of the forests in producing wood products and livestock admittedly is still going up because of the rising demands for fiber and food, but on the same soil the recreational value is going up even much faster. The forests are coming to be the public playgrounds of America. If we can hang on to our public ownership of the forest lands until this idea jells, I think that the danger of losing them to economic interests will ultimately pass. I say this knowing that the present 12 million people in California will have increased to 20 million by 1975 according to conservative demographic projection. Actually, high population will hasten the development of a strong recreational policy rather than retard it.

But there are still some rugged fights ahead. A few weeks ago Mr. Roy Battles of the National Grange told the North American Wildlife Conference in Chicago that the better silvicultural sites in the national forests should be sold to private interests so that somebody can make some money on them. And we all have followed the repeated efforts of organized livestock interests to wrest the grazing rights from the Forest Service, and even land ownership from the Bureau of Land Management. Both of these groups are ignoring recreational values, which, of course, would be all but lost in private ownership.

**THE** philosophy behind these moves represents an early stage in the sequence of ideas regarding public resources—namely, that profit for the individual exceeds in importance the needs of the community at large. If this basic view persisted indefinitely, the outlook for preserving public recreational grounds would be bleak indeed, for sooner or later the economic pressures would win. But I do not think such will be the case.

As evidence for this view let us look at the status of other recreational areas close to centers of population. Golden Gate Park occupies a really substantial area in the center of one of the largest cities in the West. Applying to that park the viewpoint of strict economic use of resources, it has no business being reserved at all. It is high value real estate that could be contributing to the tax rolls were it opened for residential development or factory sites. Instead you have the people of San Francisco paying out money to maintain these grounds for recreation. And obviously it would be unthinkable now to alter the situation. Here you have an example of what I would call a mature social view toward recreational resources.

Following backward through a graded series of stages in this development, Muir Woods and Yosemite Park are nearly as completely accepted as Golden Gate Park. An attack on the integrity of those areas would be an attack on society. But Olympic Park and Dinosaur Monument are not yet there, as recent history clearly indicates. The national forests are even less secure and the public grazing lands still less. The public domain in Alaska is in stage



one of the sequence. There more than anywhere in the States, the frontier outlook persists. The idea that recreational resources may be worth preserving is literally hooted down by the sturdy and independent Alaskans. Opening government lands to free exploitation is the battlecry.

Saving the basic facilities for public recreation through the long period of social maturation has been in the past and will continue to be in the future our primary task. But it is heartening, to me at least, to believe that there may be an end in some happy time to come, to the perpetual rear guard defense of these areas from exploitative interests.

I have been talking about land, because it best illustrates the progressively shifting viewpoint of which I am speaking. But the same principle applies to other recreational resources such as fish and wildlife. The rough treatment that wildlife receives at the hands of agricultural interests will ultimately be reversed, I think. Even with an increasing population and ever rising demands for food, there should be room in our agricultural economy for waterfowl refuges, once the public at large decides they want them. And ultimately some streams may even be securely staked out for the use of salmon, free from the encroachment of impoundments (that is, if there are any salmon left). Perhaps I am an incurable optimist, but that is my belief.

OF course, there are many other serious problems besides saving the raw materials from which recreational facilities are fashioned. How they are managed and developed is nearly as crucial a question.

The usual criterion of recreational value of a resource is *mass use*. Congress, for example, still seems to apply a single measure to recreational value—how many million people used the facility last year? Anything that is used by enough people gets on the accepted list first. But certain types of recreation are destroyed by mass use, as for example wilderness travel. There is no place yet in the public consciousness for the more difficult and exacting forms of outdoor sport that attract relatively few addicts. But certainly one objective of a long-range recreation program should be *variety*. We should hope to perpetuate many

types of facilities, from the heavily developed camping ground to roadless areas for the backpacker, from the comfortable duck blind for the corpulent executive to the rocky back-country where eager youngsters pursue their deer. This viewpoint is not generally accepted, as yet. But again, I feel we are at an intermediate stage in the evolution of social thinking about recreation. Opera, the legitimate theater, and art galleries are types of low-use recreation that are very much a part of our mature urban culture. Likewise I feel that the value of low-use resources in the out-of-doors will find full acceptance ultimately, if we can hang onto them long enough.

In the field of wildlife management there are some parallel problems that bother me. Free hunting and fishing of which I have been speaking can, I hope, be perpetuated on public lands. But the day of free access on private land is about over. Even now charges of \$5 to \$10 a day are commonly made for hunting coast black-tails, and lesser amounts for pheasants. Duck hunting is far more expensive—practically a rich man's game already. The cooperative management areas and public shooting grounds maintained by the California Department of Fish and Game are still supplying some free shooting but the co-ops at least will probably disappear as commercialization of sport on private land develops. As the income from hunting and fishing becomes a sizeable and dependable part of farm income (and I think it will, especially on poor lands) landowners will probably start to manage their own lands for a larger yield, and that is good. But they will probably also begin to artificialize sport for profit, and that is bad. Already there are dozens of places in California where for 50¢

*Continued on Page 179*

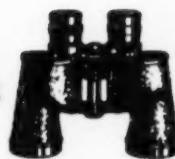
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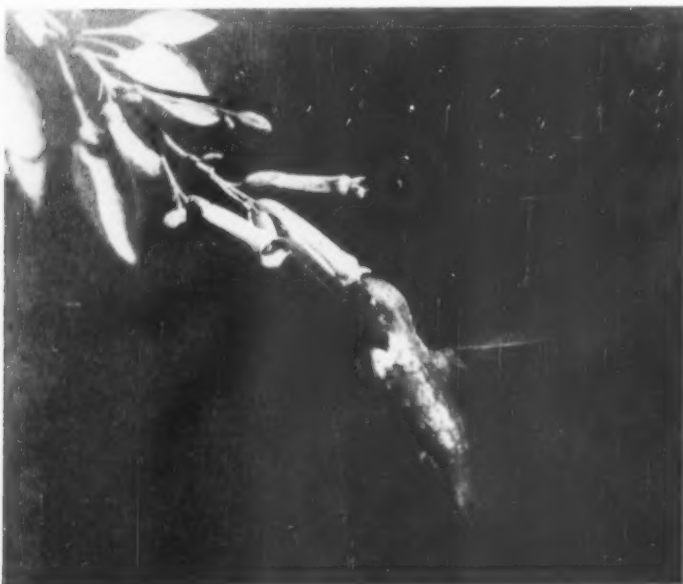
By Charles and Viola Anderson

ALONG the coast of California from Santa Barbara northward to the Oregon line, and extending inland for 20 miles, is the breeding grounds of the migratory Allen's hummingbird,\* which winters from southern California south into Baja California and Mexico. Some of these tiny hummers leave their wintering grounds before the end of January, and hurry northward along the Pacific coast. They stop at their favorite nesting spots, but any location along the 650-mile ocean front will not do. They prefer ravines and canyons, also parks and gardens that have many sorts of introduced trees, including stands of eucalyptus.

We found our Allen's hummingbirds in a eucalyptus grove near Salinas, California. It was in February 1952 that we first visited and watched them arriving in great numbers. We estimated more than 100, both males and females, darting about and feeding in the eucalyptus blooms.

## AT HOME WITH THE *Allen's*

The sheen of the green back feathers of this Allen's hummingbird, feeding at a blossom of tree tobacco, distinguishes it from the rufous.  
Photograph by Robert S. Woods.



This midget of a bird is only three-and-one-half inches long from the end of its slender bill to the tip of its tail. It gives the general impression of a bright rufous bird with a metallic green head and back. The white breast is sharply defined at the throat. The male has a gorgeous red throat that glistens in the sunlight; that of his mate is dusky. In fact the general color of the female is duller and she blends perfectly with her surroundings while incubating her eggs.

The winter of 1951-52 was particu-

\* The migratory Allen's hummingbird, *Selasphorus sasin sasin*, formerly called *Selasphorus allenii*, breeds in a narrow coastal area along almost the entire length of California. It winters, according to Bent ("Life Histories of North American Cuckoos, Gnatcatchers, Hummingbirds and Their Allies," Bulletin 176, U. S. National Museum, 1940) from southern California south into Baja California (San Quintin and Santo Domingo) and into Mexico. An island form, or race (from San Clemente and Santa Catalina Islands off the coast of southern California) called the non-migratory Allen's hummingbird, *Selasphorus sasin sedentarius*, has been described by J. Grinnell, *The Condor*, September 1929. It is slightly larger than the mainland migratory Allen's hummingbird, *Selasphorus sasin sasin*.—THE EDITORS

larly wet. The Salinas River had twice risen, overflowing the bases of the tall trees and even covering the highway that leads to Monterey. The past rains bothered the hummingbirds not at all—but clear skies were not ahead, for the rain continued. A windstorm in mid-February loosened the roots of eucalyptus trees in the grove and toppled scores of them, like giant matchsticks.

By the end of February we were able to visit the hummingbirds again. We paced the lengths of some of the fallen trees and discovered that many of them measured 140 feet from roots to tips. About 50 hummingbirds were still in the grove, but now the females predominated. They were very busy gathering plant down, spiders' webs, and thread-like shreds of bark for their nests.\* Luckily these birds do not build in the treetops for it would have been impossible to observe a tiny two-inch nest against the skyline. The Allen's hummingbird chooses sites from one to 12 feet above the ground.

nite idea, too, in the selection of the place where the nest should be built. It must have an eastern exposure and be situated where new growth left the main stem, in the axil of a leaf or at the intersection of two or more twigs.

After the female had laid a platform of down about one-and-one-half inches high, she prepared to build the sides. Now she would sit in the center of the nest with the down that she had brought and work it around the edge with her long bill. With spiders' webs and bark shreds she bound the outside firmly. So neatly were they interlaced that no ends protruded. When the nest was completed to her satisfaction, she decorated and camouflaged the outside with lichens.

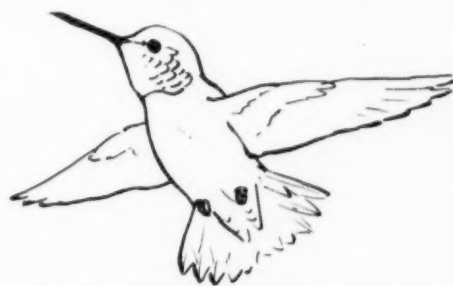
Two nests were below eye level so we selected these to watch. Because of the rainy weather, the hummingbirds did not complete these nests until March 24, about one month later than nests in the same area of previous years. By March 30, our

still in the nest, watching us intently. Thinking that there might be something the matter with it, we pulled the branch to within six inches for a better view. *Whizz!*—it left the nest so fast that it was impossible to follow the direction it took.

The Allen's hummingbirds that we watched never used their nests for a second brood. The industrious females must have worked constantly to keep those cozy homes in repair for they were in excellent condition when the young left. Within a few weeks, the ravages of the elements usually showed on the deserted nest. That was the reason that we collected several this year as soon as the fledglings left.

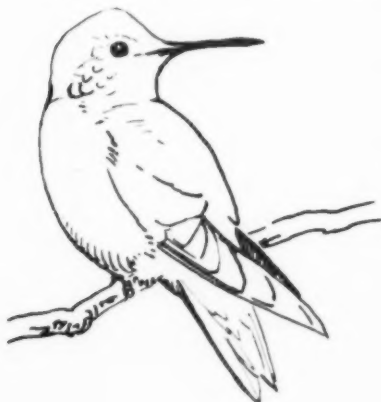
One nest was much taller than the others. It stood a good two-and-one-half inches on the axil of a eucalyptus leaf. This nest we decided to examine. Like the others that we had previously inspected, it was a masterpiece of felted willow down firmly bound on the outside with hair-like shreds of eucalyptus bark. The amaz-

# Hummingbird



We sat quietly and watched them building their homes. Like all hummingbirds, the female does all the nest-making. As we watched, they brought in plant down which they felted into position. They had a defi-

\* For other studies of Allen's hummingbirds, see *The Condor*, January 1939, pp 17-24; the March 1939 issue, pp 62-67; and the July-August 1945 issue, pp 137-148.—THE EDITORS



nests each contained two eggs that looked for all the world like iridescent navy beans. It was not until April 14 that the first tiny egg hatched. How anything so black and bug-like could have emerged from that pearly shell is a mystery! Within two days both nests had their allotment of babies, and now we visited them every day. Two faint, off-white streaks of down grew on their backs and by the last day of April, they were covered with gray fuzz. There were small feathers on their heads and gray pinfeathers on their wings. Always their heads protruded from opposite sides of the nests. When we visited them on May 5, the two young in one nest sat parallel to each other, and the next morning at 8:30, the nest was empty. Oddly enough, a similar situation was occurring in the second nest—again parallel birds! We hurried to the nest the next morning. One bird was

ing discovery was a tiny dead hummingbird, probably two weeks old, walled up in the lower half of the nest! The bird was in perfect condition but thoroughly dehydrated by the warm mat that completely surrounded it. It is possible that the nestling had died and was covered by the female in preparing a desirable nest for another clutch of eggs. What might have happened to the second nestling, we shall probably never know.

As soon as the nesting season is over the Allen's leave the breeding grounds. Leisurely now, in June, July, and August, they follow the high mountain ridges of California southward. They have been reported during these months in Kings Canyon, Yosemite, San Jacinto Peak, and a few of them, as far inland as Arizona. They will return next February to nest, provided the habitat remains the same.



# WOODLAND TREASURE

*Photographs provided by courtesy of Rutgers University.*

Looking up the trunk of one of the big oaks in Mettler's Woods. The tract is near the village of East Millstone, Somerset County, New Jersey.



**From out of the past, a 65-acre primeval forest still stands in one of the most heavily-traveled parts of America. A group of New Jersey citizens and the staff of a university are trying to save it—for science and posterity.**

**By John T. Cunningham**

**T**HOSE who revel in the hopped-up pace of the modern world find great pleasure in reciting the fact that central New Jersey, directly astride the route from New York to Philadelphia, probably has more trains, trucks, and automobiles speeding across it than any other area in the world. That's the Twentieth Century world at its acme—or at its most congested.

Fact-finders tell us that the stretch of Pennsylvania Railroad track near New Brunswick is the most-used section of steel rails on earth. The New Jersey Turnpike bears countless thousands of roaring vehicles every week. *Busy, busy, busy! Modern, modern, modern!*

Yet the delightful paradox is that seven miles from the busy Pennsylvania Railroad track, almost within smell of the Turnpike gasoline fumes, there flourishes one of the quietest, most pristine bits of forest in all America. That's Mettler's Woods, 65 acres of primeval forest in the midst of confusion.

Few of those racing across New Jersey know of Mettler's Woods, which is possibly one of the reasons why it has remained so untouched. Yet to botanists, ecologists, and students of nature, Mettler's Woods is priceless—perhaps the only living testimony along the eastern seaboard of what hardwood forests were like before the coming of the white man.

Priceless? Well, not exactly, at that. Right now Mettler's Woods stands betwixt and between a woodman's ax and a struggle by Rutgers University to save the giant oaks. There is a price—\$85,000 offered by a lumberman and tentatively accepted by the owner. There is another price—



\$75,000—an alternate sum that the owner has asked from conservationists if the woods are not to hear the ringing ax.

Nature's own unpredictable moods forced the lumber-or-conservation issue in November, 1950, when a hurricane cut a swath through the woods, felling several massive trees. The owner asked a lumberman in to clear the debris; the lumberman, in turn, looked over the woody richness of the 65-acre tract and quickly offered \$85,000 for the area. By the summer of 1952, many of the trees had been blazed for cutting.

Rutgers scientists, working in the coolness of the forest, noticed the marks and immediately pleaded for the salvation of the woodland. The owner, somewhat surprised that the woods had important natural values, agreed to hold off sale of the woods and proposed a counter price of \$75,000; a cut from the other offer of \$85,000, or in effect—a \$10,000 gift.

Rutgers University couldn't buy the property—it's a State institution and rare indeed is the politician who sanctions anything so frivolous as a woods where scientists can study. So a committee of private citizens is seeking the money, including an additional \$25,000 as an endowment fund. As of mid-April the "Save-Mettler's Woods Fund" had reached \$40,000, enough to make it hopeful that the woods will continue untrammelled by civilization.

Meanwhile, Mettler's Woods, the object of the science-versus-lumber controversy, stands as quietly as it has since long before the first white man set foot on American soil. It has weathered other crises—hurricanes, fires, colonists, and picnickers—and in the weathering has accumulated a wealth of evidence of its progress through more than three centuries.

As an ecological and botanical record, the forest is of incalculable value; as a great laboratory for research in botany, zoology, conservation, watershed control, humus deposition, soil improvement, and fungal growth it is irreplaceable. Still, Mettler's Woods has more than those unquestioned values. It is also a place of beauty set amidst an area that has been radically changed by progress.

The Woods is close to East Mill-



The rotted trunk of a tree lying on the ground, the deep leaf litter and dense shrub understory in the primeval forest of Mettler's Woods. (Below) Dr. Murray F. Buell, Rutgers University botanist, measures a white oak tree almost 11 feet in circumference, estimated to be 300 years old.



stone, seven miles west of New Brunswick, and is approached across an open field. That approach points up quickly what three centuries of man's handiwork has accomplished. The eroded soil in the field is shaly and only moderately rich; the forest, in contrast, retains the lushness of the earth in which its roots are set.

Mettler's Woods is a "climax" forest. It is a cross-section of nature in equilibrium in which the forest trees have developed over a long period of time. The present oaks and other hardwood trees have succeeded other types of trees that went before them. Now these trees, after reaching old age, die and return their substance to the soil and help their replacements to sturdy growth and ripe old ages in turn.

These replacements are limited largely to the white, red, and black oaks making up the bulk of the forest. There are some hickories, an occasional beech, and just enough sugar maples to lend interesting contrast. These make up the towering overstructure, rising to the lofty height of 75 to 80 feet over the entire area.

Below the oaks, an understory foliage of dogwood trees rises about 30 feet above the ground, and the dominant layer of oaks and hickories and the understory layer of dog-

woods live in apparent harmony. Their foliage, so important in the manufacture of tree "food," is at two distinct levels. Nevertheless, the light under the oaks is sufficient to allow for an optimum functioning of the dogwoods.

Under the dogwoods only the most hardy shade-tolerant plants will grow, for only about four per cent of available sunlight filters through to the forest floor. The maple-leaved viburnum, a shrub, finds the dense shade to its liking and grows about four feet high over most of the forest floor.

In the spring, before the three overhead layers of leaves blot out the sun, wildflowers—the may apple, spring beauty, and anemone—rush to absorb what vigor they can from the April sun. They bloom profusely before the quick-sprouting foliage wipes out their brief span of forest glory.

And so, down to the leaf-covered ground and below, down through 36 inches and more of rich topsoil, goes New Jersey's virgin forest. Even below ground there is order. May apple and spring beauty send down only shallow roots, viburnum sets its roots slightly deeper, dogwoods root even deeper, and the oaks reach down six feet or more for nourishment.

The thick leafiness of the trees in Mettler's Woods cuts summer heat, and on a hot July day the temperature at the heart of the forest is at least 15 degrees cooler than in the open fields. Conversely, in winter, temperatures range up to 10 degrees higher in the woods than in the open.

Only in time can a tree attain great size, and the recorded history of Mettler's Woods goes back to 1701, when Mynheer Cornelius Van Liew, a thrifty and far-sighted Dutchman, acquired the land. He felled numerous trees and cleared a wide stretch of land, but he left standing this magnificent forest of oaks and hickories.

Much as the sentimentalists would like to think he did it for love of forest, Van Liew probably had in mind the more practical notion of providing himself and his descendants with a perpetual source of good oak logs for their fireplaces and plenty of hickory chips for smokehouses bursting with slabs of bacon and rows of bulging hams.

Whatever the reason, this forest—running nearly a mile long and roughly a quarter-mile in depth—has been preserved down to Thomas Mettler, the present owner.

Locked within the standing trees there are histories that tell stories of natural and man-made catastrophes. For example, the 1950 storm that felled some old patriarchs of the forest, in their cross-sections told tales to Dr. Murray F. Buell, Rutgers professor of botany who has long been interested in the woods. Dr. Buell cut off a three-and-one-half foot section from one of the trees and traced its history through the rings. He found that this great tree had started to grow about 1627—70-odd years before the first white man came to Somerset County.

Scars in that cross-section told Dr. Buell another story of a tree surviving its times. The forest had been burned over repeatedly through the years—in 1641, 1652, 1662, 1676. Dr. Buell says the Indians had a habit of burning off forests, either to clear them for easier traveling or to rout out game animals. Other fire scars conveyed still another tale, when Dr. Buell found marks in the rings for years 1701 and 1711, apparently made by white settlers using fire to clear the nearby land.

But the tree which Dr. Buell stud-

Dr. Buell examines the exposed root system of a pin oak overturned during a 1950 hurricane that struck Mettler's Woods.



ied is by no means the largest and oldest in the woods. There is one old living giant that measures 10 feet, 10 inches in circumference and definitely was growing prior to the year 1600. Throughout the woods are oaks which have kept this old tree company most of its life.

History is only a single aspect of Mettler's Woods, and, in all truth, only a minor aspect in the overall impelling arguments why the woods should be saved for posterity—not to mention for the scientists who are deep in study of the forest.

Rutgers University professors and students have used Mettler's Woods for years as a living laboratory. They have made, and are making, studies of the ecology of the forest, the climatic condition as compared with nearly open fields and the secondary vegetative succession. Many other scholars have studied in the woods, too, some of them coming from great distances to the unique woodland.

Studies in Mettler's Woods to date have only scratched the surface. Some of the future research suggested for a university-owned forest include its geology, the water relations of the woods, forestry problems, microclimate, fungal growth and decay, forest insects, and the interrelationships among birds, mammals, and the forest.

The bird-mammal study seems



A dendrometer has been used by Rutgers scientists every week for several years on hickories, white oaks, and black oaks in Mettler's Woods. The instrument measures the heights and diameters of trees in studies of their growth rates.

somewhat overdue, since questions about the wildlife of the woods elicit the response that "it isn't much different from the surrounding area." Probably that's true enough, but future bird and mammal studies are certain to put a great deal of useful information on file. There is evidence that wildlife has not used Mettler's Woods as a particular sanc-

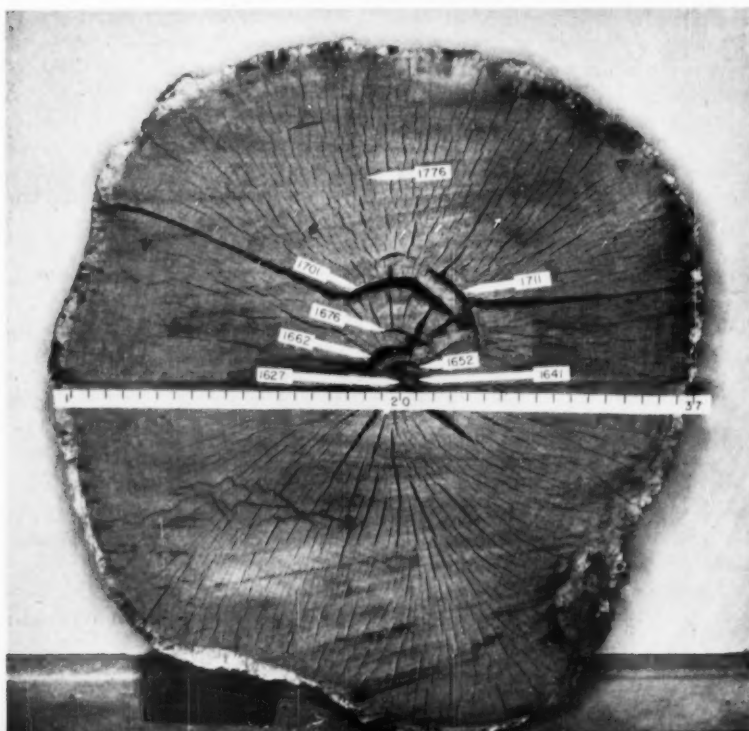
tuary—possibly because its depth is so relatively slight in relation to its length—yet in a "forest primeval" any naturalist will find vital information.

Scientific studies have been somewhat limited up to now because the property has been privately owned, although the owners have been generous in making it available. University ownership, however, is certain to pick up the pace of inquiry—and in an outdoor laboratory established at the turn of the 17th century, there are ample problems with which to work.

The busy railroad and teeming highways through this area are a fundamental part of the richness of Mettler's Woods, centuries apart though modern transportation and old woods are in tempo. For the very nearness of the woods to the great cities of New York and Philadelphia makes it easily accessible.

The use of the woods as a center for research and study is, of course, the most compelling reason for the preservation of Mettler's Woods, but seemingly it should be preserved as a sole remnant of a great national heritage of forest. As one Rutgers professor puts it, "The destruction of Mettler's Woods for lumber would be akin to melting down the Liberty Bell because the metal would make good doorknobs."

Cross-section of an aged tree, blown down in Mettler's Woods by the 1950 hurricane, tells scientists some details in its long history.





# THAT "BARGAIN" IN

## Binoculars



Photograph by H. Kitchen, Jr.

By Henry Harford

SOME beginners seem to regard a binocular as merely a smart detail in the bird-watcher's costume. To others, it is an occult crystal ball used to conjure up birds for the list. Often, both notions are justified. Every day, people buy binoculars that are as useless as heavy necklaces and as unclear as clairvoyant crystals.

Recently, a certain naive "birder" discovered that he might just as well have spent his money for a 5x (five-power) binocular instead of a neat 8x (eight-power) "bargain." There was no fraud; it was a genuine 8x, as marked. Under test, it magnified objects to eight times their actual size, but it was incapable of revealing minute details, such as the eye-ring of a warbler.

The birder learned this by comparison with an M3, a standard 6x army binocular. Using the M3, he was able to read certain printed matter easily at a distance of 18 feet. It seemed logical to predict that the same print, under the same desk lamp, could be read at about 24 feet when viewed through the new 8x instrument. Actually the print was barely decipherable at 14 feet, showing the effective power of the new binocular to be slightly less than five. After all, this true resolving power is what identifies birds, and is what a trusting bird student hopes he is getting.

Luckily, the binocular had been purchased under a trial period agreement and the buyer did not have to keep it. Many buyers excited over their new binocular, do not think to test it and are stuck with an inferior one for years.

The word "test" has a technical

ring which alarms some people too easily. No one shrinks from trying a new recipe in the kitchen or a new gear shift in a car.

Instead of "testing," the buyer can try his new binocular in his own living room without waiting for a fair week-end. The details of natural objects are hard to compare but a line of print is either definitely legible or it is not. Test charts, as used in fitting spectacles, would be good but the front page of most newspapers has some size of print suitable for the purpose.

Pin the page against a wall and direct a strong light on it. Then, looking through some good binocular of known performance, choose a line of print and move back, a step at a time, until the line can no longer be read. If you back into the opposite wall, keep choosing a smaller size of type print until one is found to suit the space available. A type line barely readable through the binocular at about 18 feet is convenient for use with a 6x binocular.

To steady the binocular, sit astraddle a chair and use its back as an elbow rest. Move the chair to the farthest point at which the print can be read clearly, or "resolved." Measure carefully the distance from the paper and make note of it. Then, without moving the paper or the light, repeat reading through the new binocular. It would be well to recheck both glasses on slightly different print. The distances obtained should be different but consistent.

Instruments of equal quality should produce comparable results under identical conditions. If the binocular of known quality shows a certain ratio between its maximum resolving distance and its magnify-

ing power, any new glass should be capable of the same ratio, approximately.



The 6x army binocular gave the ratio of 18 to 6, or 3. An 8x glass should give 24 to 8, also 3. But actually, that 8x "bargain" could not resolve the print beyond 14 feet. Fourteen divided by three equals 4.66. A 5x binocular of army quality could identify birds at a greater distance! And the birder who bought that bargain binocular thought that he had bought an instrument eight times as effective as his naked eye.

Those to whom algebra is a horrible memory, may detour around this paragraph, but at their own risk. Aside from its philosophical beauty, algebra is really handy at times. We can learn quickly the comparative resolving power (x) of any glass if we fill in the simple formula:

$$x = \frac{\text{Power of known glass} \times \text{Distance of new glass}}{\text{Distance of known glass}}$$

For example, this formula applied to another binocular gave:

$$x = \frac{6 \times 27 \text{ ft. } 6 \text{ in.}}{18} = \frac{6 \times 27.5}{18} = 9.16$$

This instrument was marked "9x35" by a famous American manufacturer. In other words, the 9.16 indicates the glass is measuring up to the engraved "9x".

For the benefit of perfectionists, it must be noted that results are not



always precise. The formula is correct but the apparatus used is crude. Comparable errors occur in measuring tracts of land when distances are "paced off." Yet, when no surveyor and his precise measuring tools are available, pacing will prevent buying 14 acres where the contract specifies 24 acres.

Simplicity and convenience are the features of the indoor test. Based on performance alone, it permits a practical comparison between instruments regardless of magnifying power and lens diameter. Despite crudities and minor inaccuracies, birders will continue to use such methods until they are supplied with a more accurate and practical test by the manufacturers.

There are several possible objections to this home test. One, the individual variation in human vision, should be nullified when the same pair of eyes reads the print through both the known glass and the new one. Also, a person's capacity to see, like any bodily function, fluctuates from hour to hour. To maintain identical conditions, no time should elapse between readings. The use of a strong light on the page throughout the test practically eliminates any effect from a larger or smaller objective (front) lens. Light efficiency, and other complexities, are explained clearly by the Reicherts in their recent articles in *Audubon Magazine*.

One objection is valid. Since one unstandardized instrument is used to test another, the formula can give only a *comparative* resolving power, not a definite measurement. But there is, apparently, no unit of resolving power, no standard of performance, and no information available on the subject.

To a layman, it seems that the optical trade should be capable of devising some means for the binocular owner to rate resolving power. In a similar situation, the auto makers describe their engines in terms of brake horsepower. The discarded older system, based on measurements of the bore and stroke, makes the primitive Model T engine seem nearly as powerful as the modern product. Something more than dimensions is built into a fine engine or a fine binocular.

\* \* \*

At this point, the naive birder wondered if, like a reformer on a soap box, his real need was more information and less rhetoric. Friends at Audubon House obtained for him the reprint of a scientific article on the subject. This was downright flattery but, despite graphs and equations, he managed to grasp the idea.

Since War II, he learned, there has been a precise system for measuring actual resolving power. For brevity, it is known as the K.D.C. efficiency rating. The early apparatus was es-

entially a motorized test chart mounted on a 50-foot track—just a lazy version of the reversed chair in the living room. Later, by substituting optical devices for mechanical, the whole outfit has been condensed into an instrument on a bench. There are refinements to eliminate individual variations in eyes, to simulate the light from a natural sky, and to correct various other factors hopelessly beyond a layman's comprehension.

As in any impersonal scientific paper, no ratings are divulged but, from a reliable source, come certain very interesting figures. A perfect K.D.C. rating, were it possible to achieve, would be 100. Fine binoculars rate between 96 and 98 consistently. Most instruments now on the market fall below 65 and many are under 55.

These ratings, compared with the crude measurements of 24 and 14 feet in the birder's living room, restored much of his ego. Now, without mounting the soapbox again, he recommends the simple home test to his friends if they are prepared for surprises.

As to the K.D.C. system, perhaps it is following the pattern of other new scientific information; ordinarily, a decade passes before the knowledge becomes generally available.

If you borrow a high-grade binocular, be careful of how you clean its lenses. It is not rough handling that the owner fears but the sandpaper technique which the novice might use in cleaning lenses. Dust is composed of microscopic particles with sharp, jagged edges. No matter how soft the cloth used to grind this abrasive into optical glass, the result is sandpaper scratches which can never be removed. The image seen through such a lens is as hazy as through glass lightly etched by other methods.

This hazy effect is not perceptible to the inexperienced borrower and the well-scrubbed binocular which he returns is something less than the superb instrument which he received from the lender. Scrubbing may be a household virtue but the owner of a fine binocular cleans his lenses as seldom as possible—and then only after removing the dust by blowing it off or by using a lens brush of camel's hair.



Drawings by  
Clara May Hawkins

Every year, with more automobiles and higher speeds, the terrible destruction of wild animals continues. Driving at moderate speeds and watching for birds and other animals that try to cross in front of you will help reduce

# Wildlife Tragedies on the

By Henry Marion Hall

DRIVING along Hammersmith Road near Newport, Rhode Island, I saw a woodcock standing at the edge of the pavement. She was chattering guidance to her brood—brown chicks strung out across the highway, so small that the leading bird stumbled over a pebble. The mother, an unusually large specimen, tawny as an October leaf, and her scampering family of smaller, winged sprites, made a picture long to be remembered.

I pulled over to the right and stopped my car beside the road, but the woodcock did not take flight, although barely 30 feet away. Her only anxiety was for her young. She continued to chipper until three chicks had reached her safely.

Then a fourth chick crept out of the grass. It had scuttled half way

*Illustration by  
Clara May Hankins.*



across when an automobile zoomed around a bend and bore down on it. Not having time to pick it up, I signaled the driver to swerve or stop, at the same time pointing to the helpless fugitive. Too late! The man ignored my warning and his juggernaut crushed out the little life. He did not even slow down until a hundred paces beyond. As his car roared past, the mother bird flared over a hedge while the little ones crawled under it.

The callous indifference of that motorist left me with a sickening sensation. Had he been willing to deviate even three inches to right or left that baby woodcock would have lived.

Happily most drivers nowadays are more considerate. Not long ago I saw one slow down to allow a covey of bob-white chicks to cross a lane with their mother. They looked almost as small as my woodcock brood, yet the driver sighted them promptly. Similarly, I once saw a motorist check his car when a brace of cock pheasants, which had been fighting at the roadside, darted

across. If the operator had not stepped on his brake the birds would have been crushed. Again, last May I noted a newly-fledged wood thrush which escaped disaster because a keen-eyed driver saw it scuttling along the road and slowed down just in time. I have witnessed more than a dozen narrow escapes of the sort.

For some years I have driven in every state of the union and have gathered significant material on roadside tragedies. I have noted that few birds are destroyed by cars *moving at moderate rates of speed*, and still fewer by operators who keep an eye out for wildlife. Even slow-flying birds can usually dodge a vehicle moving at 40 miles an hour, but it is a different story with speeds of 60, 70, or even higher. Birds cannot judge the velocity of very fast cars. Hurling down upon them, the car often confuses them, and they strike the windshield, and are destroyed.

The traffic toll of wildlife is disheartening and may be on the in-

crease as manufacturers develop faster and faster automobiles. Every state has its casualties, from ruffed grouse in Maine to road-runners in New Mexico, or valley quail in California. And everywhere species which run across the highways frequently fall victims to speeding cars.

Other birds frequently killed are small, slow-flying species, particularly roadside birds which flit back and forth across the highways. A single example will illustrate this. The beautiful red-headed woodpecker, which Alexander Wilson considered the handsomest species in America, is frequently killed by cars. Migrating northward in spring these woodpeckers investigate the hollow trees, stumps, and telegraph poles available for nesting sites along the main highways. Crossing and recrossing the roads they are frequently struck by motor cars. Traveling through Ohio one season while migration was at its height, I counted 65 red-headed woodpeckers lying dead on the road or close beside it. I tried to make an accurate count but must have missed some victims.

Those casualties occurred presumably during an unusually dense or concentrated migration, along a central route, and I can only hope that tragedies on parallel highways were less numerous. Fortunately, the migration of red-headed woodpeckers more frequently follows streams in wooded valleys where there are no motor cars but plenty of dead trees. Three seasons ago I saw about 100 flitting from tree to tree in a northern New Jersey swamp.

A certain number of bird casualties seem to be unavoidable. In Georgia, Alabama, and Florida, turkey buzzards and black vultures are often struck by cars while eating carrion at the roadside. These big birds rise rather slowly from the ground and are killed much more frequently than most people think. Thoughtful motorists always sound their horns the moment they see a flock of such scavengers busy at their grim task.

The handsome Audubon's caracara occasionally meets a similar fate while busy feeding upon some dead roadside animal. Twice I have seen



specimens lying beside a road in central Florida or along the edge of the pavement. Similarly the Florida grackle is occasionally destroyed while investigating refuse on the highway, but this species is so alert that it generally flushes in time to escape.

Everybody knows that many deer are killed by cars, to say nothing of opossums, raccoons, dogs, cats, and other small mammals. Squirrels often lose their lives by lack of decision, or by a rash change in decision, dashing out into the road ahead of a car, but turning back by an impulse which spells their doom. Quick use of the brakes will sometimes save them, but this may be dangerous if you are followed closely by another car. Recently, I was scolded by a companion whom I was driving because I suddenly slowed down to avoid striking a young and helpless catbird.

In Georgia, where on the "open range" the grazing of cattle along the highway is still permitted, pigs and cows are frequently killed and serious accidents result. The same was true in Florida until the "open range" was abolished. Skunks are the commonest victims in the country—particularly on foggy nights when they like to prowl down the main roads. Next morning one often sees their mangled bodies in the bloody dust.

In the wide open stretches of Wyoming, Colorado, and Montana the number of rabbits destroyed on the roads is shocking—both cottontails and jack rabbits. Here and there the motorist notes a ground squirrel eating the mangled carcass of a rabbit at the roadside. Often the poor squirrel is then, in turn, crushed by some hurtling vehicle. Presently a vulture alights at the scene and is struck by still another fast car. I have noted many cases of this kind.

The same care in driving, which tends to save human lives from destruction on highways, often saves our birds. These are low or moderate speeds, particularly during seasons of migration, an eye quick enough to spot an endangered creature at a distance, and the prompt use of brakes.

After dark we see our headlights reflected in the eyes of distant animals along the road. In the country,

at night, one can locate deer by this eye "shine," both in the woods and in orchards on the farms. This brings the realization that in both suburban and rural areas we are often surrounded by hundreds of living creatures, which should make for careful driving.

In the great federal and state sanctuaries low and moderate speeds for motorists are compulsory and few birds are hit by cars. Egrets, ibises, herons, and cranes thronging the creeks and marshes along the Tamiami Trail across southern Florida are almost never struck by automobiles, although traffic is often heavy. Another reason is the fact that these birds have grown wary of cars. Whenever they cross the highway they fly high enough to be out of danger. I have driven along the Tamiami Trail several dozens of times without seeing a single bird injured.

A responsible driver should be even more careful when he drives through country where he is likely to meet considerable wildlife; for example, the Bear River marshes of

Utah, the breeding area for more wildfowl and shore birds than any similar part of the United States.

Thereabouts motorists slow down as a matter of course. Not that they fear striking flying ducks, although that is a possibility. But the driver occasionally sees plovers or sandpipers nesting among the pebbles in the middle of the road and nearby curlews, snipes, and other beautiful species are nesting. Such birds are always likely to flush close to your car, or to lead a tottering brood of nestlings directly across your line of travel. A few summers ago I passed perilously close to a pair of tall, pink avocets, most graceful of shore birds. It was 40 miles west of Salt Lake City on the white salt desert which extends to Nevada. The temperature was 120 degrees and the birds seemed dazed by the heat.

Remember—a little care on your part may mean the saving of the lives of many animals. Try driving more carefully this summer. Your efforts, and that of others, will make a significant contribution to wildlife conservation in America.

## A Whooping Crane Stamp



Professor William Rowan, head of the department of zoology at the University of Alberta in Edmonton, has informed *Audubon Magazine* of the good news that the Canadian postal department has taken recognition of the popular demand for a whooping crane stamp and has announced that such a stamp will appear as a ten cent issue.

Canadian conservationists expressed the hope that the United States postoffice department will issue a similar stamp. The National Audubon Society has recommended such action as a means of giving additional publicity on a continent-wide basis to the plight of America's rarest bird. The continental population of wild whooping cranes now stands at 24.



# OFF with the OLD — ON with the NEW

How a toad moults its old "coat" for a new one.

By Joy Buba\*

WHEN eating well and growing fast, a young toad sheds his skin every few weeks. It takes only about 10 minutes and is rarely noticed unless one confines a growing toad for a few weeks in a moist place well supplied with live insects.

Symptoms, indicating that the moment of moulting approaches, are its apathy, hunching its back, seeming to yawn, and batting its eyelids. Its old skin looks drab and is so thin and transparent that it is hard to detect as it splits down the back. With comical contortions the toad may help it along by scratching its back with the delicate toes of its hind foot.

But the toad cannot pull or pick up objects as we can with our fingers. Its method of gaining a pulling leverage is ingenious.

By hunching and "yawning" it is jarring loose the veil-like costume of its old skin and sucking it in over its lips, getting it behind its tongue and down its throat. By swallowing from time to time, it keeps a steady strain on the loosening skin. Having split down the back and belly, each half of the skin slips along, almost invisibly, until the gathers begin to show like a strong dark elastic rope or a bridle rein on each side of the toad's face. The moulting skin moves into the corners of its mouth, pulled into its stomach by swallowing. While this is happening the tension is quite apparent.

The hind quarters seem snared in a hammock, when suddenly the toad wriggles its knees free. Their bright markings show up clear and moist against the old skin still around its hind feet. Soon this skin is on the

way to its stomach while it struggles with its "vest" and "sleeves." As with the hind legs the skin's split runs up into the longest toe or finger, facilitating its removal like a

glove peeled from one's hand.

A few mighty swallows and then, a gleam in its new suit, the toad's eyes grow bright and it is keen a-hunting insects again.



*J. Buba*

\* Mrs. Buba illustrated the book, "Frogs and Toads," by Herbert S. Zim, published by William Morrow & Company. The toad sketches used here are from the Zim book.



**1** Both parents work steadily at nest building. The male (right) sits on a newly-started nest; female at left is on an old nest.

**2** The pair abandon the new nest and start house-keeping in the old one. Male bird, the shyer of the two, hides behind the female.



## A PICTURE

# THE Swallow IN THE

By Gladys Emerson

THE trim and graceful little barn swallow is one of the best known birds on the farms and prairies of the Midwest. Before the coming of the settlers, swallows nested in crevices or holes in cliffs and creek banks. However, with the advent of the farmer, this little bird quickly adapted itself to the barnyard. Barn rafters are its favorite site for building, and small wonder. The nearby stock tank furnishes mud for the nest. The hay in the loft and the stalls furnish the hay and horsehairs needed to complete the nest. Also, the farmyard and the nearby fields furnish an abundance of food for the adult barn swallows and their ever-hungry brood.

I spent many hours (sometimes four hours at a sitting) watching at the nest during the brooding season of the pair of swallows shown in these photographs. The rafter on which the nest was built was so high that it was impossible to get good pictures from the floor, so I built a shelf for my camera about three feet from the nest site. Standing on a manger and pre-focusing the camera, with flash bulb in place and film ready, I waited for the pictures that I wanted. At first the birds were so timid that they refused to come near. I was never able to snap them building the new nest, for they were very careful to work only when my cam-

## STORY:

# BARN llow MIDWEST

*All photographs by the author.*

era and I were not in evidence. Later after they had abandoned the new nest and had taken up quarters in the nearby old one, I was able to get them at work. As my photography progressed they became very tame and often alighted on the shelf which held the camera.

One very amusing incident happened which showed me how the barn swallow's instinct to pursue insects while in flight is inherent even in the tiny birds. One day while the female bird was bringing lunch—one of the little ones, which had already been fed, was sitting quietly and gazing around. Suddenly a large wasp which had been giving me an uncomfortable time buzzed over near the nest. The little bird watched it pass and as it circled to return, the young swallow stretched its neck and peered over the edge of the nest. When the wasp came near the nest, the little bird made a dive for it. It missed the wasp, lost its balance and tumbled out of the nest, landing in the driveway below. It will never know that I rescued it only minutes before the family cat came stalking into the barn!

The barn swallows stay with us in the Midwest until late summer, then band together in huge flocks. In the evening the fences and telephone wires are lined with them as they rest from their long day's feeding. Early in September they begin their long journey south.

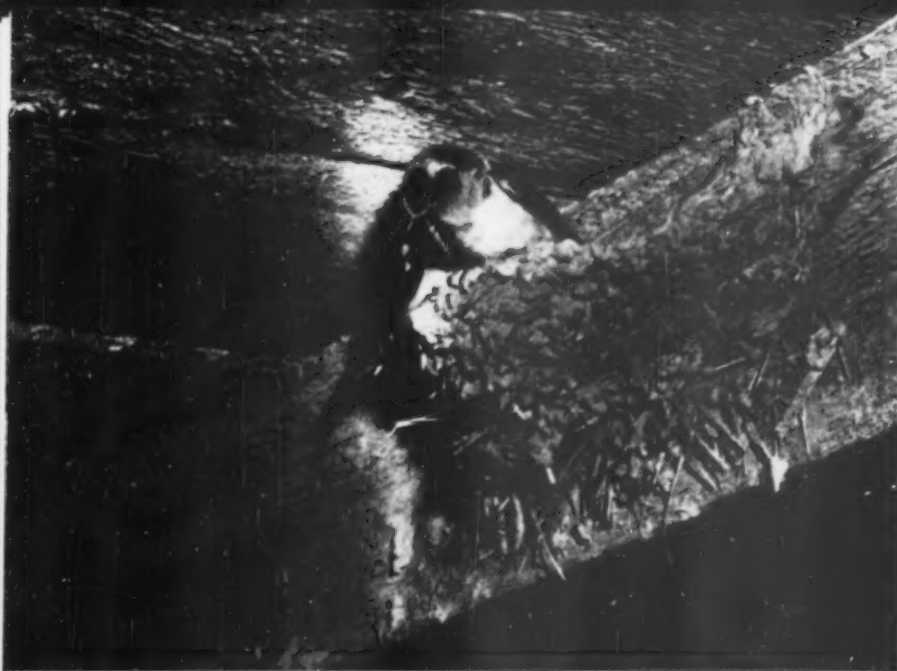


**3** Female puts a white feather in the nest. Male behind her has just arrived. So swift is his flight that fast camera speed caught only a blur.

**4** Still at last! Both parents rest a moment from their labors. Observers have noted that it takes them from eight to 12 days to build a new nest.

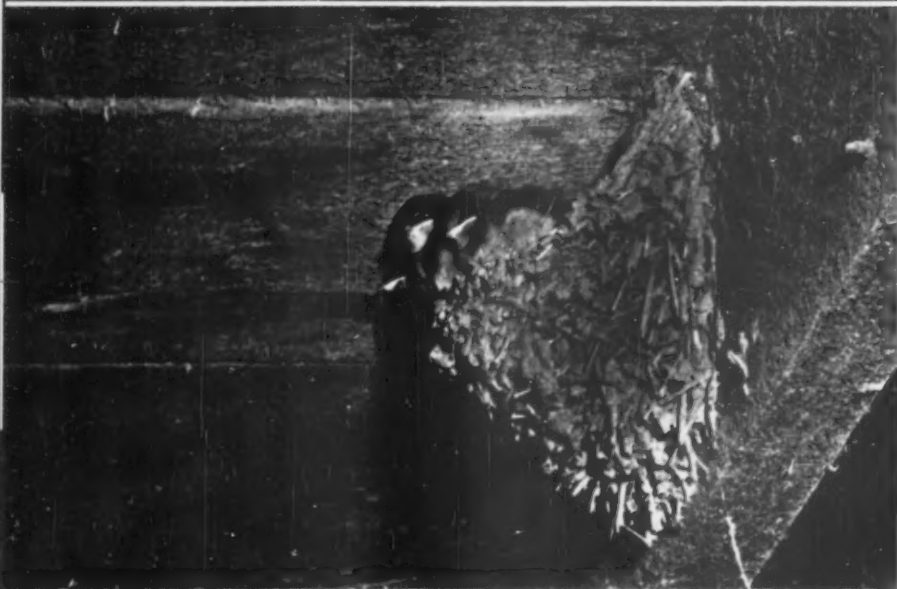






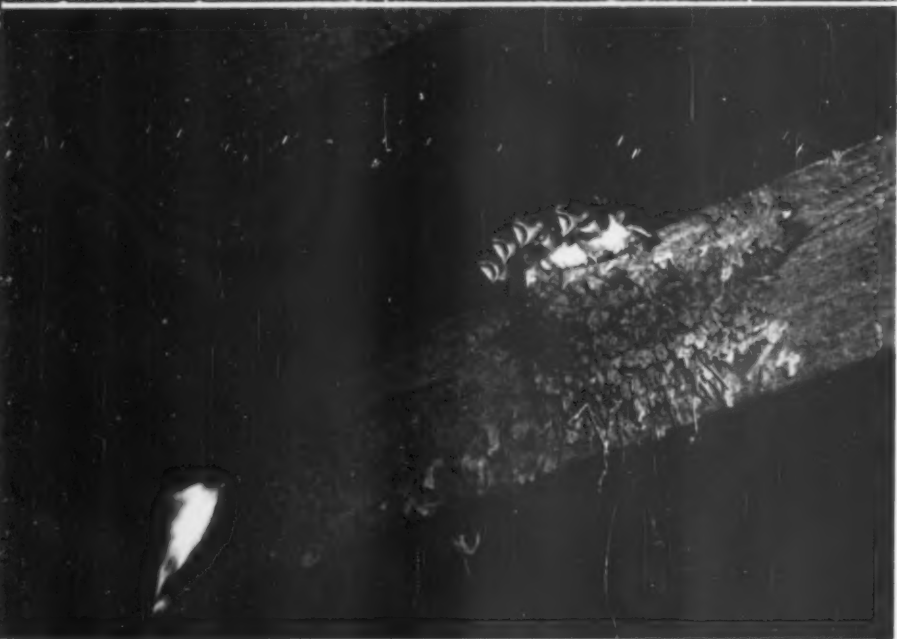
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**5** The female leaving the nest after laying the first egg. Sets are usually four to five; six eggs are fairly common; seven are considered rare.



6

**6** Four youngsters hatched in this nest, although only three are in sight. Incubation of the eggs is usually 15 to 17 days; sometimes only 13 days. Both parents incubate.



7

**7** The four youngsters call loudly as a parent, blurred by its swift flight, brings insect food to them. Both parents feed and care for the youngsters during their time in the nest.



8

8 The female places a large winged insect deep into the throat of a hungry youngster. One still cries for food, another looks temporarily filled, while a third turns its back.

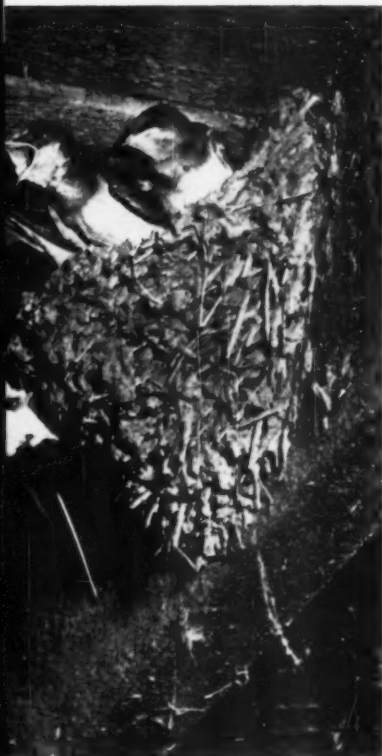
9 The female daintily places a small insect in a young one's mouth. The parents fed the youngsters almost constantly every day that they were in the nest.


10 Two broods are usually raised in the northern states. The youngsters are ready to leave about 18 to 23 days after they are hatched.

9



10





# Leaves THREE, let it be!

Blossoms and foliage of poison "oak," *Rhus diversiloba*.

All photographs by the author unless otherwise noted.

The poison "oak" of the West is not an oak but a shrub or vine related to poison ivy. The name of "oak" has been given it because of the fancied resemblance of its leaves to those of an oak tree.

By Ken Legg\*

TO poison oak\*\* I say, "You have your virtues. I like to see your blossoms, berries, and above all your beautiful red foliage in fall. Your soil-holding ability in gullies is admirable and without you we would lose a little each year of our land through erosion."

As a ranger, I handle poison oak arguments as gingerly as I handle the plant, for people who have had it are not agreeable to any discussion of its virtues.

\*The author has been a ranger in California state parks for more than six years. He is, at present, Park Supervisor, Natural Bridges State Park, Santa Cruz, California.

\*\**Rhus diversiloba*, the poison oak, ranges from western Washington southward to northern Lower California, Sonora, and Michoacan, according to Leroy Abrams, "Illustrated Flora of the Pacific States," (Washington, Oregon, and California), published by the University of California Press, Stanford, 1951.

I know of more amusing, and more unfortunate experiences of people with this deciduous shrub than with any other plant in our parks and forests.

One day, I met a man, his wife, and their 12-year old Boy Scout son on the trail. The wife told her husband to show me the leaves he had in his pocket. He fished out a fist full of the terrible foliage and said, "This *isn't* poison oak, is it?"

It was, and when I broke the horrible truth to him, the woman and boy nearly went out of control laughing at the poor man. The Boy Scout had told him that it was poison oak but the proud father was convinced that it was not. To prove his certainty he had picked it and foolishly rubbed the leaves on his face. He was not only chagrined,

but frightened after he had talked with me about it.

The best and only sure protection against poison oak is to learn to recognize the plant, at any time, and not to touch it. It is rather surprising that practically everyone has heard of poison oak but so few people recognize it. Like many plants it goes unrecognized and misunderstood, and I call its infliction upon us nature's revenge for our not being aware of our environment.

The old saying, "Leaves three—let it be," is descriptive of it and the rule applies at all times. The foliage of poison oak is a glossy green, composed of three leaflets. In the fall these green leaves turn bronze or red and drop to the ground.\*

\*"An erect shrub, 1-3 m. [3 feet to 9 feet] high or in forests becoming a vine and ascending trees by aerial roots to a maximum height of 40 m. [120 ft.] or more. Leaves 3-foliate, deciduous, leaflets ovate, obovate, or elliptical . . . lateral leaflets usually sessile . . . Borders of streams, thickets, and wooded slopes . . ." "Illustrated Flora of the Pacific States," pp. 50-51, Vol. III.



The poison which irritates the human skin is a nonvolatile phenolic substance which is found in all parts of the plant. Most poison oak plants are more potent to our touch in spring when the sap is up. During spring and summer, poison oak is at its "itchy best," for there is more oil in the leaves at that time. In the winter when only the bare, leafless branches are showing, poison oak is not so potent although anyone who is especially susceptible to it can contract the poisoning at any time of the year.

Many misconceptions concerning this western counterpart of eastern poison ivy\* are rife among park visitors. It seems to be common belief that one can become infected simply by walking near the plant. This is not true for the only way one can contract the skin poisoning is through contact with the plant or some object which the plant has touched. the only exception to this is soot carried in smoke from burn-

\* Poison ivy (*Rhus radicans*), according to "Illustrated Flora of the Pacific States" does not grow in California, and its range is "eastern Washington and Oregon east to the Atlantic seaboard and south to Mexico and the Bahama Islands . . ." Poison ivy is not listed for California in Wills Linn Jepson's "A Manual of the Flowering Plants of California," published by the University of California Press, Berkeley, 1951.—THE EDITORS.

**Poison oak often climbs 40 feet up the trunks of trees. It clings to the bark by its aerial rootlets.**



Leaves of poison ivy, *Rhus radicans*. Photograph by Hal H. Harrison.

ing poison oak. This can and has seriously affected persons breathing it.

Dogs, cats, and other animals that have brushed against poison oak may carry the oil in their hair, and the shoes or clothing of another person can transmit the skin-blistering oil to anyone who is sensitive to it. People who have "a dose of poisoning" from it may transmit it to the steering wheel or door handles of cars; the blistering oil may then infect another person who touches these objects.

Immunity to infection is often professed by people, but anyone who deliberately touches poison oak to prove this is inviting trouble. The degree of immunity appears to be relative and "absolute immunity" does not appear to exist. The degree of skin-blistering is based upon the physical condition of the individual and the circumstances of exposure.

I can walk through poison oak with little risk when I am not perspiring and it affects me but little. The several severe cases I have had, I got while working on a warm day and perspiring freely.

There seems to be no quick cure for the poisoning and what may work for one person will not help another. Sometimes a person will find one remedy effective and later, to his surprise, get very little relief from it. A great many patent medicine remedies, some of doubtful worth, are offered for sale. Some of these, however, are soothing to the skin irritated by poison oak.

The belief that eating a few leaves of the plant will develop immunity in the individual is unfounded. It should *never* be tried and no part of the plant should ever be taken internally as it is a violent irritant and poisonous to man.

I was "gifted" with a dose of it for





Crinkly, greenish-colored berries appear on poison oak during the summer. Many birds, including the valley quail, a subspecies of the California quail (right), eat the berries of poison oak.

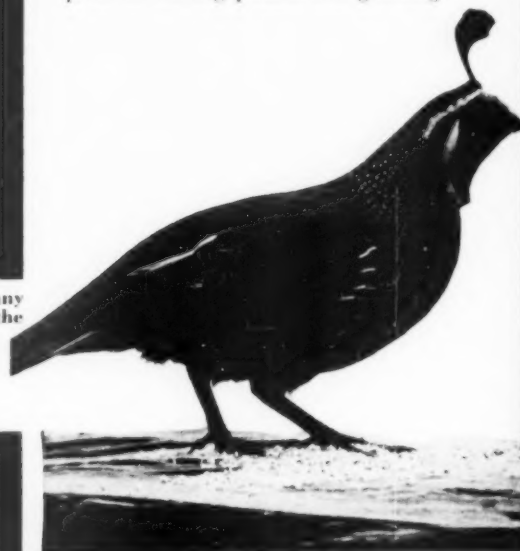
Deer live in the dense thickets of poison oak.



Thanksgiving, Christmas, and New Year's Day following a birding expedition. This was my first dose and what began as a skin rash developed into weeping sores. The case was finally cured by taking a hot shower and applying one of the drugstore remedies.

Cattle, horses, and deer apparently do not suffer from the skin irritation caused by this plant, and they have even been observed eating it. Bees collect honey from the flowers and there are no reports on record of any ill effects from the use of the honey.

Visitors to the park profess surprise at finding poison oak growing



there and often say, "Oh! you have poison oak here?" This should not be surprising for it is one of the most widespread shrubs in California. It grows in dark woods or in open fields. In the open it assumes the upright position of a shrub but in the woods it climbs the trees as does a vine.

Early in the spring a loose panicle of greenish white flowers appears on the plant. By summer the flowers have matured to white, crinkly berries. No plant or animal is all bad, and poison oak is useful as a soil holder on slopes and gullies. Valley quail and other birds feed upon its berries and its use to deer and bees as a food source has been mentioned. It provides cover for game species and related wildlife and doubtless has other beneficial uses not yet known.

The leaf form is variable even in

the one species and botanists are still not agreed on the naming of the different forms. In one locality we may find oval leaflets with smooth edges while nearby plants will have lobed or serrated leaflets. Familiarity with the plant is the best method of avoiding infection but if one must work in it there are certain precautions that are helpful. Some measure of protection can be gained by wearing protective clothing such as gloves, then disposing of them when the work is completed. Protection may also be obtained in advance by the use of creams or lotions which prevent the poison from touching the skin or make the volatile oil easily removed.

We cannot be indifferent to any plant which has caused so much suffering. In schoolyards, small public parks or private estates where chil-

dren play, it should be eradicated, although this may not be possible where it is widespread in large areas.

There are many commercial preparations on the market which, if used as directed, will kill the plant. It can be grubbed out when the ground is soft and the long roots pulled up. Unless these roots are completely removed the plant will spread by sprouting. The best time to use one of the weed-killing chemicals is after the stems are cut and new growth comes on.

At one park we sprayed some plants with a commercial preparation which was supposed to kill it by accelerating its growth. The growth "accelerated" to the extent that these were the healthiest specimens in the area but they never died. At another time we were successful in killing poison oak by drenching

the foliage with a plant eradicating spray.

The name "oak" is a misnomer as this species is in no way related to oak but is related to poison ivy. The Latin name *diversiloba* refers to the irregularity of the shape of the leaves on different plants. Sometimes lobes occur on all edges of a leaflet thus giving it somewhat the appearance of an oak leaf.

In a display of this plant, one red leaf placed in a bottle and one green leaf in another, brought the remark: "Huh, poison oak and poison ivy, eh?" California has no poison ivy—ours is all "oak."

Unlike the eastern states, California has little red foliage. For this reason the fall poison oak foliage attracts much attention. Perhaps, in time, both its virtues and shortcomings will be better known.

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## ★ ★ ★ NATURE IN THE NEWS ★ ★ ★

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# A Rare Songbird Back in Virginia

**Bachman's Warbler Is Sighted After 16 Years—Male Heard Sounding Mating Call**

*Reprinted from The New York Times, May 10, 1954*

WASHINGTON, May 9—Bachman's warbler, regarded as the rarest songbird in America, was sighted for the first time in more than sixteen years in near-by Virginia yesterday.

Its identification was confirmed today by members of the District of Columbia Audubon Society.

This pretty little bird, rare even in river bottom swamps of the South, his normal habitat, was spotted yesterday at Lebanon, the estate of Dr. Paul Bartsch, retired former curator of mollusks at the Smithsonian Institution.

Harriet Sutton and Morgan Gilbert, participating in the May bird count of the society, saw the bird on the estate near Lorton, Va. Today Dr. Irston Barnes, president of the society, and Miss Shirley Briggs, editor of *The Atlantic Naturalist*, the society's magazine, went to Lebanon and confirmed the identification.

The warbler they saw was a male singing continuously and evidently seeking a mate. He had established his "ter-

ritory" and was chasing away other species of warblers.

The last reported sighting of a Bachman's warbler in Virginia was in Augusta County on July 5, 1937, by Dr. and Mrs. Austin Clark.

Roger Tory Peterson, noted naturalist and painter of birds, said in his "Birds Over America" in 1949, "I do not know of a man in America who can show me a Bachman's warbler." Mr. Peterson, who resides here, was in Europe, and therefore could not be reached to determine if he had finally found the bird in his extensive travels.

Bachman's warbler has an olive-green back, a little black cap, a large black bib, and a bright yellow face and breast. The first recorded taking of the bird was in 1833 by the Rev. John Bachman. He showed it to John James Audubon and the great naturalist named it for him.

According to the records, it was not reported again for fifty-three years after that, and there have been only about a half-dozen sightings of it since 1887.

The bird migrates from its swampy habitat to the West Indies. Thus it flies in the paths of hurricanes, and a theory of its scarcity is that the violent tropical storms have destroyed great numbers of the species through the years.

*Reprinted from the Stuart (Florida) News, April 22, 1954*

## We Need an Audubon Chapter . . .

Martin County needs an active chapter of the National Audubon Society. I say this reluctantly because we are already over-organized . . . but the work of the society redounds so much to the good of everyone that I'm excepting it.

"Why do we need an Audubon chapter?" I hear a voice from the side.

Well, friend, for appreciation, if for nothing else. They saved the songbirds of America from becoming pot-pie material as they are in Italy—and, most wonderfully for us Floridians, restored the egrets, ibis and other tropical water birds.

Right now, in cooperation with the sportsmen of Florida, the society is seek-

ing to save inviolate a part of Corkscrew Swamp on the west coast. . . .

I'm for the Audubon Society all the way. It was one of the prime movers in creating the Everglades National Park. Audubon wardens gave their lives for us years ago to stop the plume hunters from ruthless destruction of Florida birdlife.

An Audubon chapter could do a lot to help educate the children in our schools as to the wonderful birdlife around us here and, more than that, give the youngsters an absorbing and continuing hobby that will stay with them and afford them pleasure all through life.



Probably the rarest warbler in North America, the Bachman's was not seen for half-a-century after its discovery. It has reappeared and disappeared. Now it has returned to its old haunts near Charleston, South Carolina. A well-known ornithologist calls it the

By Alexander Sprunt, Jr.

FOR parts of three days in May 1918 I had been haunting this piece of Carolina swampland. The bird had been reported there; others had seen it; I had heard it sing but, hitherto, could not find it. Close at hand, here and there, above and aside, had echoed the buzzy little trill which I knew to be coming from the bird, but look as I might, not a glimpse of the singer was to be had. Twice before I had gone to the swamp, and here I was again. And on this third venture, using the "squeak" until I thought my breath would depart, at last—there it was! Hardly eight feet away, unobscured by surrounding foliage, glowing like an animated jewel against green velvet—olive-green, yellow and black, yes, there it was in front of me at last—Bachman's warbler, thought by many to be America's rarest warbler.

Never have I searched for a bird harder to find; never did the squeak pay off more handsomely. Along with trumpeter swans, whooping cranes, California condors, and ivory-billed woodpeckers, I had seen—Bachman's warbler! May 22, 1918 is a date which will live long in my memory.

There are other "rare" warblers, assuming that we hedge the term somewhat. What is "rare"? Scarce, elusive, restricted in range, frequenting a remote and difficult habitat? Yes, all of these help to constitute rarity, but if one will penetrate the known range of several rarities, they cease to become rare for one is practically certain to see them. Ascend above 6,000 feet in the Chisos Mountains of Texas' Big Bend and the observer will almost surely see Colima warbler; poke about amid the cedar (juniper) clad limestone hills of the Edwards Plateau in Texas and a golden-checked warbler will show itself; look among the jack-pines of central Michigan and Kirtland's warbler will reward you. But where to look for Bachman's?

In his "Birds Over America" (1918) Roger Peterson says, "I do not

know of a man in America who can show me a Bachman's warbler." That sums it up pretty well but, curiously enough, at the very time Peterson was writing those words Bachman's warbler was beginning its longest, continuous return to a locality in known modern history! Had Peterson been in the Carolina Low Country in the spring of 1918, there were at least seven men who could have shown this warbler to him! That locality is probably the very place where the bird was discovered in the first place, and it returned through this past nesting season of 1953. Whether it will return in 1954, no one knows.

Certainly, there is no doubt that South Carolina is the state more closely associated with Bachman's warbler than any other. Many migrants were collected in Florida and Louisiana late in the last century, more than the number taken in South Carolina by far; however, both the earliest and latest records of its known existence have occurred close to the spot where it was first made known to science.

Bachman's warbler was discovered by the Rev. John Bachman, near Charleston, South Carolina, in 1833, and was named for him by John James Audubon, his friend and colleague in ornithology. After that, the warbler vanished, and for the next half century was unknown. Then, in 1886, Charles Galbraith collected one at Lake Ponchartrain, Louisiana. In its type locality of South Carolina, however, 68 years passed before it

was seen again after its discovery. In 1901, Arthur T. Wayne, one of South Carolina's most distinguished ornithologists, rediscovered it very near, and perhaps in, the very swamp in which Bachman first found it. From 1901 until 1919 Wayne saw it intermittently, years intervening at times between his observations of the bird. After 1919 it disappeared again, and became all but a legend. Time and again I was with Wayne when he searched for it in the same swamp wherein he used to find it, but we never saw it. Nineteen years went by and Wayne died during that time, in 1930. Then, in early April 1938, C. Chandler Ross of Philadelphia, saw a singing male a few miles from the famous swamp of earlier history. Again the warbler vanished but this time for a shorter period for, in July of 1946, Henry Kennon, formerly Director of the Milwaukee Zoological Park, saw it near the site of Ross's observation.

The little Bachman's warbler, since that date, began its longest appearance than any hitherto known. Every season since 1946 to, and including 1953, it has returned to the swamplands of Fairlawn Plantation, Charleston County, South Carolina.

The resulting interest in the bird can easily be imagined. It is very likely that more observers have seen it during this time than at any other period of its known history. Dozens and scores of people have come to look for it and most of them have seen it. Some, of course, were unsuccessful. Ludlow Griscom came from

*Continued on Page 179*

AUDUBON MAGAZINE



*Drawing of male Bushman's warbler by John H. Dick.*



Photograph by Paul Zahl

## OIL

What can we do to help save our national parks and monuments from destructive and improper use? The Director of the National Park Service gives us some constructive ideas on how to overcome



Photograph by Ewing Galloway

## GRAZING



Photograph by Ewing Galloway

## LOGGING



Photograph by Ewing Galloway

## DAMS



Photograph by Ewing Galloway

## MINING

# THREATS TO OUR NATIONAL PARKS

By Conrad L. Wirth\*

IN SPEAKING to the National Audubon Society on threats to the national parks, I realize that much of what I am going to say may sound familiar to most of you. As conservationists you have long been aware of our major problems and your assistance many times has certainly been most valuable.

I hope you will bear with me for a moment while I repeat that the task of preserving the integrity of the national parks and monuments is a fundamental duty imposed on the National Park Service by the Organic Act of 1916. The discharge of this duty is at times most difficult, as you realize. Our mandate, as expressed in the basic act, is "to conserve the scenery and the natural and historic objects and the wildlife" in the national parks, monuments, and reservations and "to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." The words *conserve* and *unimpaired*, I think, are highly significant. Scenery submerged under a hundred feet of water cannot be considered conserved nor can it be said to be unimpaired. The same point of view would apply to once virgin forests if they had taken from them the very trees which made them

worthy of preservation as a national park.

Threats to the areas of the National Park System invariably arise from efforts to claim some economic advantage, the benefits of which would accrue to a locality or private groups. The fact that all the people of the nation have a stake in the parks and monuments is apt to be disregarded. Pressure generated by local groups can be rapidly applied, but it takes time for the realization of the danger to reach the numerous but widely scattered individuals and organizations interested in the national parks and for them to make known their opposition.

Fortunately, such effective and well-known organizations as the National Audubon Society can, and frequently do, come to our rescue in helping to forestall a particular threat. But the thought I would like to emphasize today is that it is going to require constant support of a definite and positive park conservation program if we are to preserve the scenic, scientific, and wilderness resources we have already set aside. As the national economy finds use for more hydroelectric power, timber, minerals, and agricultural and grazing lands, so will pressure groups increase their efforts to invade the parks. Proposals to take park lands are usually not made for areas that are well known to the public. They are usually made concerning areas which the public, by and large, has not had an opportunity to see.

\* This is an address delivered by Mr. Wirth, Director of the National Park Service, as part of a conservation symposium at the National Audubon Society Convention, November 17, 1953.





View within Glacier National Park. Photograph courtesy of the U. S. National Park Service.

There is little doubt that the people of the United States lost Hetch Hetchy Valley in Yosemite National Park many years ago simply because the public did not realize then that Hetch Hetchy was a second Yosemite Valley and that within a few years it would have become of incalculable value for public inspiration and enjoyment. Even a third-rate access road, campgrounds, and sanitary facilities in Hetch Hetchy, had they been available at that time, might have saved the valley for park use. But too few people had seen the valley at the time its use for a reservoir was proposed, and the reservoir proposal won out.

There is need, therefore, for conservationists everywhere to adopt a positive approach to the whole park conservation program now, rather than to wait until a threat is upon us. By a "positive approach" I mean the building of a common front against the thought that qualified and duly established national parks and monuments, because the land is owned by the people, or because they have inviting dam sites or grazing or timber producing potentialities, should be considered for exploitation unless the very welfare of the nation should depend upon it. By a "positive approach" I mean the building in the minds of the public a real understanding of the conservation of natural resources for human use and enjoyment. It should start in our schools where, at the present time, conservation of our natural resources is spoken of in terms of board feet, tons, and kilowatt hours. By a "positive approach" I mean that, consistent with the nation's fiscal and other responsibilities, we must continually work to maintain and to develop the national parks and monuments to a reasonable extent, especially the new and less-known areas, in order that they may be enjoyed by people in the manner intended. Otherwise, they will be plucked off one by one for other uses.

Katmai and Glacier Bay National Monuments in Alaska, Olympic in Washington, Kings Canyon in California, Grand Teton in Wyoming, Big Bend in Texas, Everglades in Florida, and many other national parks and monuments have been criticized because of their lack of accessibility and use. I am sure that

the preservation of these areas would be much more secure and that they would be more nearly serving their intended purpose if they could be seen and enjoyed by more people. This does not mean that roads have to be built into wilderness. But it does mean more campgrounds, trails, boating, and other services to make back-country use of the parks more feasible.

The tours operated by your Society in the Everglades have been of great assistance to that park and in making it known to and enjoyed by visitors. Everglades National Park, of course, holds a special significance for you because of the Society's long and continued work in saving from extinction some of the striking forms of birdlife and their environments that are now protected there. Not all of our problems in the Everglades are solved, nor is the park yet complete as we hope it will be. Your able president, John Baker, continues to be most helpful to us on Everglades and many other park conservation matters. I want him, and you, to know how much we appreciate that help.

Some of the most serious threats to the National Park System come from the demands for water impoundments—proposals to build hydroelectric and flood control structures within the parks and monuments.

Fortunately, the original Federal Power Act was amended to preclude the commission from granting licenses for the construction of dams by private concerns in the areas of the National Park System, but in a few instances, park laws were so written as to provide a certain degree of vulnerability because of recognition of federal projects for dams and reservoirs that were under way or seriously contemplated when the areas were set aside. Such is the case at Grand Canyon, Glacier, Rocky Mountain, and Lassen Volcanic. For Grand Canyon the provision is so worded as to give a measure of discretion to the Secretary of the Interior to oppose project proposals that would be inconsistent with the primary purposes of the park.

In those few cases where there are dams and reservoirs in the parks, such as Hetch Hetchy and Lake Eleanor in Yosemite, Jackson Lake

in Grand Teton, minor impoundments in Olympic and the privately-owned power dam in Sequoia, the projects existed either before establishment of the National Park Service or of the individual parks. The authority to construct reclamation reservoirs in Glacier was granted by the Congress to make possible certain minor water storage projects for the benefit of the Blackfoot Indians contemplated at the time the park was established.

Coming now to the problem of protecting park forest resources, it has always seemed to some people that we are wastefully locking up timber by not permitting logging. It is difficult to convince these individuals that, for inspirational purposes, the maintenance of a superlative virgin forest is absolutely essential. Second growth timber is *not* as inspiring as the great trees of a primeval forest. Moreover, once logging is introduced, no matter how selective or restrictive it may be, the forest ecology is changed and the area, as a nature museum of scientific interest, is impaired. You are all familiar with the repeated proposals to eliminate the finest portions of the rain forest from Olympic National Park. The most recent demands for a reduction of the park boundaries resulted early this year in the appointment by the Governor of Washington of a commission to study the matter. There also were hearings a short time ago in the State of Washington by a subcommittee of the House Interior and Insular Affairs Committee. The commission has not yet rendered its report, and I do not know what action, if any, the subcommittee plans. I feel that we have reason to be optimistic, because of the excellent factual presentation of the park's side of the question by staunch park supporters and because Secretary McKay has taken the position that since the park was thoroughly considered in Congress when it was established, its boundaries should be left alone unless Congress wants to reconsider.

With reference to grazing, the National Park Organic Act authorizes the Secretary of the Interior to "grant the privilege to graze livestock within any national park, monument or reservation . . . when in his judgment such use is not detrimental to the primary purpose for which



Rocky Mountain National Park photograph by Union Pacific Railroad, courtesy U. S. National Park Service.



such park, monument, or reservation was created." The Department of the Interior has long held that the grazing of domestic livestock is incompatible with the preservation of natural conditions. Most of our grazing problems were inherited when the lands involved were transferred from the national forests or public domain or, as in the case of Badlands National Monument, where grazing was authorized as an emergency measure in wartime. The reduction and eventual elimination of livestock grazing from the national parks and monuments is an important objective of the service, but, in all fairness to the individuals whose livestock is affected, it will have to be accomplished gradually and in some cases over a considerable period of time.

With the exception of Mt. McKinley where the act establishing the park provides for continuing the mining laws in effect, mining is not permitted in the national parks. Three monuments, however—Glacier-Bay, Death Valley, and Organ Pipe Cactus—have statutory provision to allow mining with surface uses subject to regulation by the Secretary of the Interior. It is gratifying that there has been relatively little mining activity in any of these areas.

In Everglades National Park, Florida, in order to effect its establishment, it was necessary to acquire some lands with outstanding oil, gas, and mineral rights and leases. Also, the area of Joshua Tree National Monument, California, was reduced in 1950 to eliminate known areas chiefly valuable for mining. Although careful surveys indicated that the remainder contains little significant mineral values, certain interests continue to press for opening the monument to mining. And in recent years the search for uranium-bearing ores has led to requests by the Atomic Energy Commission to make surface reconnaissance studies in certain areas of the system. With the exception of Capitol Reef National Monument, however, this activity has been confined to permission for exploration with Geiger counters and scintillators.

I have not attempted to enumerate all the areas within the National Park System which are or have been faced with threats of encroachments,

but have used certain ones to illustrate the kinds of threats that would surely result in the eventual destruction of the National Park System unless they are successfully resisted or otherwise avoided.

The defense against specific threats, to be successful, usually requires the concerted efforts of conservationists throughout the country. I believe that few among the 40 million annual visitors to the areas of the National Park System would willingly consent to destruction of the values for which those areas were set apart, and I believe that our interpretive program can be and is of tremendous assistance in fostering public appreciation of the parks and monuments. The program strives to impart a background of park philosophy and park objectives as well as a knowledge of natural history or history. Having had presented to him the facts of natural history and history of the areas he visits, and their relation to the use and conservation objectives of the parks and monuments, the average visitor acquires deeper, more satisfying understanding of the areas of which he is a part owner. This not only fits him better to avoid damaging an area during his visit but also better equips him to evaluate and resist proposals for unwarranted encroachment. The volume of mail that we receive with regard to the Dinosaur and Olympic threats are ample evidence of this.

Appreciative as we are of these individual expressions, we realize that our most effective and powerful support comes from conservation organizations such as yours. Here an organized group can speak for many. Our defense against proposed encroachments has been enormously aided in this manner. But I want

to re-emphasize here what I touched upon earlier, that, in my opinion, the best defense is offense; the best defense against undesirable and damaging encroachments upon the National Park System is the continuous and enlightened support of a definite and positive park conservation program.

As we all know, the American system of democracy works through a representative form of government. If the millions of conservation-minded citizens of the country are interested in having their national parks and monuments more adequately protected and made more accessible for public use, their representatives in Congress, who make the appropriations and establish basic policies, will want to know that. They will also want to know if the National Park Service is doing a good job. If park visitors are interested in having better interpretive programs, more wildlife research, better camping grounds, more adequate ranger service, and more adequate accommodations, not only do the Secretary of the Interior and his staff want to know this but your representatives in Congress will want to know it also.

Nation-wide organizations such as the National Audubon Society are especially effective, both as a means of keeping the public informed on matters of conservation, and in speaking for the public when conservation projects and programs are at stake. While it is recognized that there always will be times when emergency defense actions must be taken, our interest in these should not be permitted to obscure the more fundamental importance of supporting year in and year out a definite and positive national park conservation program.

It is both an honor and a pleasure to speak to a group such as this. The National Audubon Society and its member organizations constitute one of the most effective means ever developed in the United States for the interpretation of nature. Your interpretive and educational efforts and those of the National Park Service are complementary parts of the same conservation effort and the same cultural interest in the world about us. It is fitting that we should consider our mutual problems and join in working toward their resolution.

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#### New Leaflets Issued

The National Audubon Society has recently issued two new educational leaflets: No. 100, the Turkey Vulture, and No. 127, the Double-crested Cormorant. These four-page leaflets, each with a color plate, are available from the Service Department at Audubon House for ten cents each, or six or more copies for five cents each. Widespread distribution of them will help to reduce the prejudice against these species which exists in some areas.

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Massachusetts to see it, and John Henry Dick of Dixie Plantation (Charleston) showed him the warbler—this visit being written of later in *The New Yorker*.

In all these eight seasons, however, no nest has been found. That the birds are breeding seems beyond any doubt, for both males and females have been seen. The males sing constantly throughout the spring but taper off markedly after May. No definite census of the numbers has been made but there are two or three pairs at least. They arrive very early, at some seasons in mid-March or the last week of that month, and start nesting at once. Arthur T. Wayne found nests in late March; thus the bird breeds sooner than the resident yellow-throated and pine warblers. During 1952 the swamp was invaded by timber-cutters, but the resulting noise and activity did not seem to disturb the warblers.

The Bachman's warbler is tremendously difficult to locate even when one knows by its singing that it is only a few yards away. The dense vegetation, and small size of the bird combine against the searcher. The song, best compared to that of the parula warbler, is uttered at the rate of 10 songs per minute, as a rule, but it has a ventriloquial effect that is very confusing. If the singing male is hard to find, one can imagine how difficult it may be to see the little female! Wayne found that the female sits exceedingly close when on the nest, allowing herself to be touched before taking flight. Only a very few of the searchers who have come to Fairlawn have seen the female.

It is probable that fewer nests of Bachman's warbler have been seen than those of any other warbler, excepting the Colima. Dr. Bachman himself never saw one. It was more than 60 years after he discovered the bird that the first nest was found! Otto Widman had that distinction, finding the first nest in May of 1897 in Missouri. Few people have found a nest since then. Arthur T. Wayne found it in South Carolina in 1906, Embury discovered it in Kentucky later the same year, and Ernest G. Holt found it in Alabama in 1920.

Wayne found nine nests, which is

more than anyone else has found. He found his last nest in 1918. No nest has been seen in South Carolina for 35 years, despite the frequent observations of the bird during the last eight seasons. Indeed, to my knowledge, no nest has been found anywhere since Holt's discovery of one in Alabama in 1920.

It might be wondered, all things considered, whether Bachman's warbler can readily be confused with any other, and therefore overlooked and unreported in sections where it may occur. Referring again to Peterson, he suggests in his "A Field Guide to the Birds" that the female hooded warbler is similar, and so it is. The latter frequents the same kind of habitat and in the same states. However, it does *not* have the yellow forehead and gray crown of Bachman's. These are points that should not be overlooked.

The male is rather unmistakable, assuming that one can ever secure a good look at it. It has been compared, in certain lights and at certain heights above the ground to both the parula and black-throated green warblers. In the account of Bachman's warbler in Bent's "Life Histories of North American Wood Warblers," p. 73, Bulletin 203, United States National Museum, 1953, there is a note by Mr. Bent under the heading "Field Marks." The author is, of course, Arthur Cleveland Bent, for whom I have an inexpressible admiration and regard. Therefore, I feel reluctant to

comment on the note but, in view of what may transpire in the future, it seems best to do so.

Mr. Bent says: "Under certain circumstances Bachman's warbler might be mistaken for a black-throated green warbler, but, fortunately, the two species do not frequent similar habitats at the same seasons."

Actually, the two *do* occur at the same place at the same season. In the swamp above referred to, where Bachman's warbler has appeared for eight seasons, Wayne's warbler, the southeastern race of the black-throated green warbler, is a regular summer resident and is a nesting species. During a frantic three-day search for a Bachman's warbler, when I heard its song continuously, Wayne's warbler was also present and singing. It is to be found regularly and without any trouble in the locality frequented by the Bachman's warbler in South Carolina. What Mr. Bent undoubtedly meant was that the typical black-throated green warbler, *Dendroica virens virens*, does not frequent the same range as Bachman's warbler. He overlooked the fact, of which he is well aware, that Wayne's warbler, *Dendroica virens waynei*, does.

What of 1954? Will Bachman's warbler return to Fairlawn for the ninth season? Or will another disappearance of a decade or two, or three, take place? No one knows. I am tempted to add a third name to this little bird's scientific name, for this is a day when the trinomial is much talked of. What about *Permivora bachmanii unpredictabilensis*?

#### CAN WE KEEP OUR OUTDOOR AREAS?—Continued from Page 151

you can jerk hatchery trout out of muddy ponds, and I know two places that will put out pheasants in front of your dog for \$5 apiece. State game departments will find a strong temptation to enter this game, in fact they already are starting to do so. That type of sport is not doing much for public ethics or morals. Some of it is inevitable, but we certainly don't want to encourage it as a government activity. Preservation of hunting and fishing, as of other outdoor recreations, must have a *qualitative* as well as a *quantitative* objective. Much of our task as conservationists will be standing guard over the

esthetic features of outdoor sport, as well as the physical facilities.

To sum up, I think that outdoor recreation already has established a place of permanence in the American way of life. Irrespective of economic pressures on resources of all kinds, our civilization is going to find a way of preserving facilities for hunting, fishing, and outdoor vacations, even at an economic sacrifice.

If our energies as defenders of these facilities will hold out during the remaining period of social growing up, they will ultimately be accepted as a completely defensible part of our mature culture.

# BRITISH

By Gordon M. Strutt

TO BRITAIN'S millions of radio listeners the name of Dr. Ludwig Koch is a household word. For Dr. Koch, "king of bird watchers," has carved a career out of eavesdropping on birds and recording their voices for the British Broadcasting Corporation.

Growing fan-mail and B.B.C. tests show that Dr. Koch's sound recordings of wildlife are gaining popularity with the British public, and that for every switcher-off there are a dozen listeners who enjoy the "bird-man's" programs.

Dr. Koch, who is 72, was born near Frankfort in Germany, and it was here that he first made his mark as a singer, trained under Johannes Messchaert and Jean de Reszke. He might have continued in this profession had not his father brought him a novel recording machine from Leipzig Fair on which he made his first wildlife sound picture—a bird singing in a cage. The year was 1889, and the recording still exists for it is unique in being the first example of recorded bird song.

By 1902 Dr. Koch had succeeded in recording a bird under natural conditions in the open air, but it was not until nearly 30 years later that technical advances in recording equipment made possible a systematic collection of the sounds of nature.

With the introduction of electrical recording apparatus Dr. Koch's hobby became his life's work—the work which is so important to him that even the basic necessities of food and sleep are only of secondary importance.

Being no admirer of Hitler, Dr. Koch sought asylum in Britain when the Nazis came to power, and although his desertion from Germany resulted in the destruction of a large number of his recordings, he has never regretted his move. The British people's love for birds\* impressed him. He was quick to ob-

\* Two books that are excellent aids to identifying British birds are: "The Pocket Guide to British Birds," by R. S. R. Fitter, Dodd, Mead, N. Y., 1953, \$4.50, and "A Field Guide to the Birds of Britain and Europe," by Roger T. Peterson, Guy Mountfort, and P. A. D. Hollom, Houghton Mifflin Company, Boston, 1954, \$5.00.

—THE EDITORS



A male green woodpecker, *Picus viridis*.

A family of stone-curlews, *Burhinus oedienemus*.





# BIRDS BEFORE THE MICROPHONE

**A German-born musician, now living in England, is a collector of birds' songs. Sixty-five years ago he produced one of the first records of a bird song ever made.**

serve that while many Englishmen were inclined only to mutter over big events an unusual bird call would send them into a frenzy of letter writing to an editor.

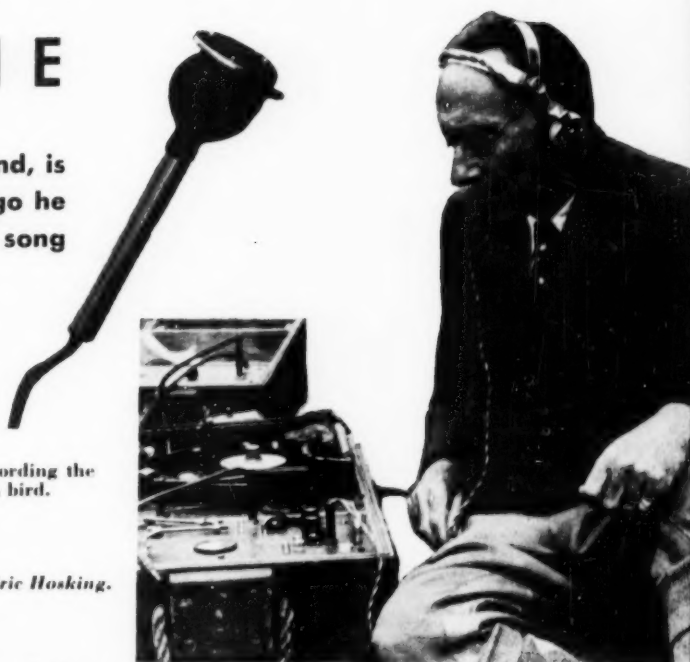
Within a week of Dr. Koch's arrival in Britain the B.B.C. invited him to broadcast. He accepted. The association thus began has led to Britain's gaining eminence in the field of wildlife recordings.

Dr. Koch's work calls for much painstaking observation, willingness to accept discomfort, and infinite patience. Fortunately, the doctor has all these qualities and that something extra which has made him the master of this unusual profession.

Take a microphone into some remote marsh or wood, and you will understand when Dr. Koch says that his form of bird watching "is not always relaxing." The microphone set in position, you retire for the night, intending to start work the next morning. Previously, you have identified the bird you intend to record, observed it for several days, or possibly weeks, and in this way have gained a good knowledge of its favorite singing posts.

Confident of success you begin operations. In a camouflaged hide, or "blind," 100 to 300 yards away, connected to the microphone by a land-line, you wait with recording gear and binoculars. The tax on your patience is almost unbearable. Eventually the bird comes. You set your turntable running, but somehow it senses your presence and despite your elaborate precautions the bird remains silent. The little sapphire needle that cuts the spiral groove in the wax, runs its full course. Another virgin disc is discarded. This may happen time and

*Continued on Page 189*



**Dr. Ludwig Koch recording the song of a British bird.**

*All photographs by Eric Hosking.*

**A bittern, *Botaurus stellaris*.**



## How to Attract Birds



### Birdbaths and Bird Manners

by Ellen Torelle

ONE afternoon in September a flock of cedar waxwings alighted on a terrace in my garden. It was a big flock—some 200 birds—and they seemed to cover every available resting place. They sat close together on the limbs of an apple tree; they were crowded on the rose trellises; they clung to branches of a red cedar tree, and sat on a low stone retaining wall in the foreground. More exciting still, the birdbath was filled with the beautiful pinkish-fawn colored creatures. Attempts to count the number of birds in the bath together at one time proved futile because of their constant movements. I counted to 20, to 24, and then decided I did not know how many there were. Splashing the water about they wove in and out in the crowd, much like human beings at a circus or fair. When one bird left the basin another from the garden took its place and the bath was occupied continuously until sundown. Not until nearly noon on the third day after their arrival had all become surfeited with the pleasures of the bath and content to leave the garden.

This visit of the waxwings presented an aspect of birdlife that had never before arrested my attention. Until then I had been content to observe the usual details to which almost all writers of books about birds call attention—their sizes, colors, markings, foods, nesting, and distribution. Now I determined to watch the birds of my neighborhood more closely to discover something of the habits and traits about which little is recorded. These waxwings seemed to enjoy bathing. They seemed to exercise restraint and use good manners, never

fought, pushed, or pecked at one another when in the basin, but awaited their turns like well-bred children. It would be fun, I thought, to follow them in order to see how they behave in the wilderness where only running water is available, or water in pools and lakes often ruffled into waves by the wind.

Since I had no magic carpet I could not follow the waxwings but I determined to observe as many species of birds as possible to discover if bathing is a custom among them and if the manner of bathing differs much in the different species. So I began to pry into the personal habits of every visitor to my garden. I also invaded bird refuges and zoological gardens where a large number of species, native and exotic, could be seen. The birds regarded me with the utmost indifference even when it was evident that I was taking notes and camera-shots on every favorable occasion.

The greater number of visitors to my

garden were perching birds which seem more devoted to bathing than others. Of these, robins and catbirds bathed oftenest. Robins visited the bath singly or in groups, always with the air and manner of proprietors, and their young began to bathe almost as soon as they could fly. They drove away birds of other species and even quarreled with members of their own. One day I saw a young robin whose tail-feathers were not full-grown enter the basin but an adult robin drove it away. The victor had scarcely begun to splash when a third robin came to contest the bathing privileges. The bird in possession refused to leave. It opened its beak menacingly, stretched out its neck, raised its wings and advanced upon the intruder, which met the attacker with a similar "no-quarter-asked-or-given" expression. After facing each other a few seconds each tried to land a blow on the other's head. When these attempts failed, they jumped up and down for some time like two fighting cocks. Finally the last-comer left his antagonist in possession.

A robin spends some time in the bath—from three to six or more minutes—and may even return to repeat the performance. After the bath it usually gives most painstaking attention to preening. The feathers are drawn through the beak in order to squeeze out the water; the wings are fluttered and the tail flounced until the coat-colors are clear and the body feathers stand out in a soft fluff.

The behavior of a catbird in the bath resembles that of a robin, except that a catbird spends less time in the water. Catbirds spend more time preening, and appear smooth and lustrous when they are through. Blue jays are nervous in the bath. They hesitate before getting in, frequently look about, and leave hurriedly as if fearful of being attacked. Baltimore orioles are also timid until experience teaches them that they are safe. Once committed to the adventure they splash almost as lustily as robins.

Wood thrushes and brown thrashers

Robins at birdbath. Photograph by Esther Heacock.



are vigorous bathers but come without companions until their young are ready to bathe. They do not seem particularly fearful; but the hermit thrush will bathe only when there are no other birds about, and when the basin is concealed by shrubbery, or a hasty retreat to a nearby tree is possible. The veery is also very shy. White-throated sparrows come in small flocks of 10 or 12—and two or three usually get into the basin together where they seem to have a merry time.

Indigo buntings refresh themselves with a drink from the basin but seem too timid to bathe. Only one indigo bunting came to the birdbath the first summer; but the following summer a family of four appeared, the male gorgeous in tropical blue plumage, the female attired in grayish-brown, and the feathers of the young grayish-brown, edged and flecked with blue. As the young flew about from tree to tree or rested on the edge of the basin, their colors caught the light in such a way as to bewilder the observer; for they seemed at one time blue-gray, at another blue-brown or blue-green, always fascinating and delightful. It would have been gratifying to be able to believe that the male was the same bird that visited the bath the previous summer and that he had been so well pleased with his call that he remembered the place and brought his family along on his second visit. Bluebirds seldom came to the garden but one sweltering August morning a small flock appeared and both males and females bathed vigorously.

During the five years that I observed house wrens which nested in my garden, only once did I see a wren bathe in the birdbath; a mourning dove, a yellow-throat, several goldfinches, warblers, and vireos visited the garden and rested on the rim of the bath, but I did not see them bathe.\* Three cardinals remained in the garden throughout the year but apparently were not attracted to the bath. Song sparrows and grackles bathed frequently. English sparrows bathed often, especially during the early spring, but when robins or other birds drove them away from the basin they contented themselves with a pool or puddle, or took a sand bath nearby.

Flickers and other woodpeckers are vigorous bathers but awkward and hesitant, with their eyes on their surroundings as if they expected an enemy to pounce upon them at any moment. Of three species of woodpeckers which frequented our garden, only the red-headed bated frequently. They experience some

difficulty in getting into a basin with a flat bottom. When this woodpecker alights, it clutches the rim of the basin as it would a tree-trunk, with the result that the posterior part of its body slumps under the basin and only the head is above the rim. With a dexterous forward movement it thrusts itself into the basin and begins its bath with a boring motion of the beak and head, at the same time splashing the water over its body with the tips of its wings. One summer a pair of red-headed woodpeckers made their home in the trunk of a tree not far from the birdbath. They became so friendly that they often called, with a whirring sound difficult to describe, when they wanted food, and spent much of their time near our house, chasing English sparrows and other birds away from the bath and the feeding station. When two blue jays contested with two red-heads for possession of the bath, the blue jays won.

Quails and pheasants prefer sand baths, but pheasants occasionally take a water bath. I once saw a Lady Amherst pheasant bathe in a pool which was rather shallow. The pheasant's legs were so long that it had to crouch down on its haunches in order to wet as much of its body as possible. In this position it ducked its head repeatedly, splashed water over its back with its wings while its long tail was entirely submerged. Satisfied at last with its soaking it arose and walked to the edge of the pool, a most bedraggled and sorry-looking object. It then opened its wings as if for flight, flapped them several times, and after repeating this for nearly half-an-hour its feathers glowed with almost a metallic luster, the buffs, browns, and reds with which the body was adorned becoming radiant in the sunlight. If one purpose of the Lady Amherst in bathing is to enhance its beauty it succeeds gloriously well.

Seton Gordon records that a "stalker" once came upon a great golden eagle bathing in a clean pool on a mountain-side. When it had bathed, it walked to the edge of the pool and shook out its feathers. Starlings are said to enjoy bathing so much that they enter pools of melting snow at freezing temperatures.

Almost all birds drink before taking a bath. Pine siskins eat snow in winter if water is not available. Starlings and cedar waxwings have been seen to fly into the air to catch snowflakes.

\* Mrs. Torelle might have gotten some of these birds to bathe if she had installed a drip-birdbath. Falling water has a magic attraction for birds. Since we added a drip-bath to the birdbath in our Long Island garden, we have had flycatchers, warblers, vireos, and even house wrens, come to bathe. Previously, we had not seen any of these birds use our bath.—JOHN K. TERRES

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## BOOK



## Notes

By Monica de la Salle

Librarian, Audubon House

With this issue we are leading off with a book review by a guest reviewer, Jean Delacour, Director, Los Angeles County Museum, Los Angeles, California. Captain Delacour is an internationally well-known ornithologist, formerly associated in this country with the American Museum of Natural History. His latest major book, "Pheasants of the World," was published in 1951.—THE EDITORS.

## A FIELD GUIDE TO THE BIRDS OF BRITAIN AND EUROPE

By Roger Tory Peterson, Guy Mountfort  
and P. A. D. Hollom, Houghton Mif-  
flin Company, Boston, Mass., 1954.  
7½ x 4¾ in., 318 pp. Illustrated. In-  
dexed. \$5.00.

Since my early years, well over half a century ago, I had missed a convenient and well-illustrated book for field identification of European birds. The few guides in existence were so poorly conceived and illustrated as to be practically useless. There were, to be sure, excellent handbooks, and we still lack today in the United States a work to match the wonderful "Handbook of British Birds." But there was room for a satisfactory field guide. We have it now since the great American specialist in the matter, Roger Peterson, has joined forces with Guy Mountfort and P. A. D. Hollom to produce a perfect little book. All those familiar with Peterson's American Field Guides will recognize the same pattern in this European venture: the illustrations could not be better nor more useful and we find the same excellent sort of plates and drawings. Guy Mountfort, who lived near Paris for 10 years and was there, like myself, one of the mainstays of the French Ornithological Society, and Mr. Hollom, the editor of *British Birds*, have long had the necessary experience of continental and insular birds. All three have contributed to the high standard of the work, and numerous distributional maps have added greatly to its general usefulness.

The book is introduced by Julian Huxley, who outlines clearly the benefit that all Europe will derive from the Field Guide. It provides a perfect way of liaison between European ornithologists. The English edition, now out, contains the names of birds in French, German, Dutch, and Swedish, and is to be

followed promptly by editions in the French, German, and Dutch languages. For an American traveling in Europe, and for all interested in the birds of the old countries, the present work is invaluable. —J. Delacour

## FEATHERED WINGS; A STUDY OF THE FLIGHT OF BIRDS

By Anthony Jack, Methuen & Co., 36  
Essex Street, Strand, London, W. C. 2,  
1953. 7½ x 5 in., 131 pp. Illustrated.  
Indexed. 15s (about \$2.25).

An aviator in the Royal Air Force during the war and an amateur ornithologist all his life, the author of this small book has written a clear and interesting introduction to the mechanics and styles of bird flight. Simple principles of aerodynamics are explained, illustrated by line drawings. Soaring, cruising, diving, maneuvers, and "acrobatics" are discussed, also the anatomy of birds as flying creatures, speed and height of flight, meteorological influences, and theories of navigation.

## LIFE HISTORIES OF CENTRAL AMERICAN BIRDS: FAMILIES FRINGILLIDAE, THRAU- PIDAE, ICTERIDAE, PARULIDAE AND COEREBOIDAE

By Alexander Skutch, Cooper Ornitho-  
logical Society (Pacific Coast Avifauna  
#31), Berkeley, California, 1954. 10¾ x  
7 in., 448 pp. Illustrated. Indexed.  
\$10.00.

Extensive ornithological collections from tropical America exist in museums, and these specimens have been listed, described, and classified in scientific journals. Yet no field guide exists for the birds of these regions, and very little is known of their habits. It is true that scattered accounts, some long before Hudson, Chapman, and Beebe, are to be found. By and large, however, their ways of life have not been observed systematically. Mr. Skutch has lived for years

in Central American countries, and with the scrupulous accuracy of a professional botanist and ornithologist he has now gathered the results of his studies into a book. The information given covers appearance, food, voice, general habits, nest-building, eggs, incubation, and nestlings, organized to satisfy the researcher. Don Eckelberry's colored plate and black-and-white drawings are excellent as usual, and there are also photographs and a good index. But above all the book is distinguished by the author's remarkable narrative gifts. His delightful choice of words, his subdued sense of drama, his contagious enjoyment in watching the behavior of these strange and often beautiful inhabitants of the tropical forests, give the reader almost the same excitement as if he were himself watching from the blind.

#### THE MATING INSTINCT

By Lorus J. and Margery Milne, Little, Brown and Company, Boston, Mass., 1954. 8 1/4 x 5 1/2 in., 243 pp. Illustrated by Olaus J. Murie. Indexed. \$4.50.

Whether sex is good or evil, a tragedy or a comedy, will probably continue to be a subject of controversy, as it has been since the Garden of Eden, because our human race has spiritual and moral values. The animal kingdom, however, has none. The mating activities of animals should not be judged according to our own standards: they are predetermined and logical, though the motives behind them are not immediately apparent. What will impress the layman first in this popular book, written by two professional zoologists, is the extraordinary diversity of the patterns of sexual behavior in animals. Partners are chosen by sight, sound, smell, taste, or touch. Some creatures mate for life, others are promiscuous; many fight to the death for a spouse, while a few do not need one at all to perpetuate their kind. Most animals show great concern for their offspring; others practically ignore them. In some species it is up to the male to incubate the eggs or care for the young, the female's maternal instinct being limited to casual egg-laying. Though the title might suggest that this is a Freudian essay on the animal kingdom, there is nothing lurid in its tone; the essential purpose of all living creatures, the perpetuation of their kind, is approached with a cheerful, healthy-minded respect.

#### THE NATIONAL PARKS: WHAT THEY MEAN TO YOU AND ME

By Freeman Tilden, Alfred A. Knopf, Inc., New York, 1954. 7 1/4 x 4 1/4 in., 324 pp. Paper, \$1.00.

This excellent book, which first appeared in 1951, is now available in a

pocket edition. The traveler in this country will find it most useful. Pleasantly written, it gives information on the history, size, facilities, attractions, and folklore of our national parks and monuments. It is a pity that the index of the five-dollar edition is not included; however, the table of contents is a fairly good substitute. The size and the price should make it most popular.

#### THE BOOK OF WILD PETS: BEING A DISCUSSION ON THE CARE AND FEEDING OF OUR WILDLIFE IN CAPTIVITY, TOGETHER WITH NOTES ON THEIR IDENTIFICATION AND LIFE HABITS

By Clifford B. Moore, Charles T. Branford Company, Boston, 1954. 9 1/4 x 6 1/4 in., 553 pp. Illustrated. Indexed. \$5.95.

Among the rescued animals brought home to be nursed and nurtured, some of the creatures extracted from small boys' pockets are likely to be distressing to the rest of the average family. It is for the young man a matter of the utmost importance that his zoological finds be housed and fed properly, watched over perhaps somewhat sporadically but in some very conspicuous place. Mothers, and generally other members of the household, have one hope, that the beetle, water scorpion, spider or snake will not seek better quarters in somebody's bed! There is also a matter of prestige: being able to identify the "thing" and to handle it so that it will not die off before the young scientist has completed his observations. All this information and much more (including chapters on fool-proof cages) is provided in this excellent manual, which has long been out of print. Teachers and librarians will welcome it on their reference shelves. The author's discussion of aquaria, terraria, and the animal inhabitants thereof, and, in fact, almost every conceivable aspect of the home zoo and animal hospital, is written in an engaging, non-technical style which makes the book wonderful reading besides.

#### NEW GREEN WORLD

By Josephine Herbt, Hastings House, New York, 1954. 8 1/4 x 5 1/2 in., 272 pp. Illustrated. \$4.00.

John Bartram's biography is the central theme of this essay on early botanists in America. In the eighteenth century, most of the North American continent was unexplored and the vast majority of those who came over had in mind only to exploit the riches they could find. John Bartram thought only of preserving them. First alone, and later with his son William, he traveled from Canada to Florida in search of botanical discoveries. He collected plants, nurtured them carefully, and sent seeds

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to England for propagation by British noblemen and other amateur collectors. The author conveys the wonder and beauty of the wilderness that Bartram saw and loved, as well as much information on the period. It is therefore a pity that the book has no index.

## WILDLIFE MANAGEMENT: FUR BEARERS, WATERFOWL AND FISH

By Reuben Edwin Trippensee, McGraw-Hill Book Company, New York, 1953. 9 1/4 x 6 1/4 in., 572 pp. Illustrated. Indexed. \$7.50.

The first volume of this excellent textbook (reviewed in the May-June 1949 issue of *Audubon Magazine*) discussed the general principles of wildlife management, and the life histories, ecology, and management of game birds and mammals. This second and last volume is concerned with water and wet lands and follows the same pattern as the first in regard to fur-bearers, waterfowl, and fish. With bibliographies at the end of each chapter, distribution maps, index, and extensive information, this book will no doubt occupy an important place on any conservation reference shelf.

## THE BIRDS OF JAPAN, THEIR STATUS AND DISTRIBUTION

By Oliver L. Austin, Jr., and Nagalisa Kuroda, Museum of Comparative Zoology Bulletin, Vol. 109 #4, Cambridge, Massachusetts, 1953. 9 1/4 x 6 1/4 in., pp. 280-637. Indexed. \$4.00.

This checklist, which includes information on distribution, migration, breeding records, eggs and nests, but not descriptions of the birds, will be most useful for those who own also "New Illustrations of the Birds of Japan" by S. Ushida, reviewed in the January-February 1954 issue of this magazine. In both books, the Latin, English, and Japanese names are given so that identification will be possible, though naturally somewhat involved.

## HOW TO MAKE A HOME NATURE MUSEUM

By Vinson Brown, Little, Brown Company, Boston, Mass., 1954. 7 3/4 x 5 1/4 in., 214 pp. Illustrated. Indexed. \$2.50.

Collecting is no doubt in the nature of man, not necessarily because he is a miser or a maniac but because when he sees something beautiful or interesting he would like to preserve it. Most of the time, however, the "find" ends up, days or months later, in the trash basket because one does not know exactly what to do with it. This little book will help to straighten out the problem. Once the space is found for future treasures—a

shelf, a corner or a room (a whole chapter is devoted to planning the display), one can proceed to the collecting, classifying, mounting, and labeling specimens systematically, and the book tells you how. The techniques for making molds and models, charts, drawings, etc., are described and illustrated. There is a chapter on arranging displays for beauty and for story-telling, and another on trading museum mounts and specimens. An excellent bibliography will be helpful to the beginner or to anyone who wants to start a reference library; lists of dealers in biological and nature supplies are included, as well as suggestions for exhibits. The amateur, the science teacher, and the naturalist will now have no excuse for not sharing their interests with others, as well as keeping their own records.

## WASHINGTON—CITY IN THE WOODS

Edited by Shirley A. Briggs, Audubon Society of the District of Columbia, Box 202, Benjamin Franklin Station, Washington 4, D. C. 6 x 9 in., 56 pp. Illustrated. 75 cents.

During May 1953 the Audubon Society of the District of Columbia presented an exhibit at the U. S. National Museum. In their own words, "Its aim

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was twofold: to show the unique and priceless heritage our city possesses in its remaining natural areas, and to delineate the dangers now threatening many of our cherished woodlands, meadows, marshes, and waterways." The maps, photographs, and text of this booklet are based on that exhibit, and altogether they form a striking example of a local conservation group in action.

An intense affection for the region and a vivid sense of its history, combined with practical energy and a cooperation so complete as to be nearly anonymous (none of the 10 articles which make up the text is individually signed) are evident on every page. Anyone interested in conservation in its broader aspects will find this booklet both inspiring and disturbing.

(From a news release issued by the National Audubon Society)

## MICHIGAN PROTECTS ALL HAWKS AND OWLS



Governor G. Mennen Williams of Michigan signs the bill which protects all hawks and owls in his state. Looking on are some of the persons who worked hard to secure passage of the legislation. Left to right are Ralph O'Reilly, Homer Roberts, Walter Nickell, and Victor Knowles, all of the Detroit Audubon Society; Senator Harold M. Ryan, who introduced the bill; Ray Gauthier, Michigan United Conservation Clubs; and Edward M. Brigham, Jr., president, Michigan Audubon Society.

Michigan's hawks and owls won't have to dodge bullets any longer. They have found a friend in Governor G. Mennen Williams, who on March 29 signed a bill which protects all hawks and owls in the state.

The National Audubon Society reported that the bill was passed after an intensive state-wide educational campaign by Audubon Societies and sportsmen's clubs. There was only one dissenting vote in the state legislature.

It is now illegal to kill any kind of hawk or owl in Michigan. An exception provides that farmers may destroy these birds on the rare occasions when they are doing actual damage to domestic stock.

The National Audubon Society observed that Michigan is the second state to give effective protection to all birds of prey. Connecticut took the same action in 1951. Hawks and owls are not protected by the Migratory Bird Treaties, as are most other wild birds.

The Society has just completed a survey of state bird protection laws which

reveals that only nine states still do not protect any hawks or owls. Most states protect the majority of predacious birds, having enacted such laws at the behest of nature groups and farm organizations which have pointed out their value in maintaining nature's balance.

The Society also reported that 23 state conservation departments are cooperating with it in the distribution of circulars about the value of hawks and owls. A spokesman said, "We believe that many other states will soon follow Michigan's good example. The public is beginning to recognize that predators are essential to the health of the wildlife community and that the continued slaughter of hawks, owls, and other predatory species is detrimental to the cause of wildlife conservation. The small creatures that hawks and owls eat breed so rapidly that there is an important job for every bird of prey to do. In addition, these birds are among the most interesting and highly-adapted creatures in the out-of-doors. Study of them will reward anyone who undertakes it."



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# Children's Books

By Dorothy Edwards Shuttlesworth



AT THE twelfth International Conference on Public Education (organized by Unesco and the International Bureau of Education) opinions of vital importance concerning the value of nature studies were assembled. Each of the 47 countries represented at the Conference revealed a deep love and respect for nature; and all felt that acquainting children with nature's ways should be a world-wide goal. In these times when we are striving desperately to find ties of mutual interest and understanding among the nations of the world, it is heartening to read the aims as stated by various representatives at the Conference. Here is a small sampling:

From Afghanistan: "... To help people to understand and appreciate nature, to encourage them to protect trees, flowers, and harmless animals which are both the natural riches and the ornament of a country."

From Chile: "... To do away with superstition; to awaken in each child a love of nature and to become acquainted with her."

From Ecuador: "... The study of natural science should help in the search for truth and the destruction of prejudices."

From Ireland: "... Rural science is not intended to be vocational, but it should serve to deepen the child's interest in the world around him; it should appeal to the senses and thereby develop habits of careful observation, enquiry, and clear thought."

From Turkey: "... Drawing the children's attention to the interdependence of man and nature, and helping them to understand as much as possible of the way man and nature influence each other."

From Poland: "... To make known the importance of biology which enables man to harness nature and to raise the economic standards of the country by a rational organization of agriculture."

As a result of these stated aims and others, including an emphatic one from our own country, the Conference officially recommended that "... natural science be introduced as from the first classes of the primary school." We know that long before this Conference many American schools were doing splendid work in making even their youngest pupils nature conscious. Today as recognition grows of the importance of nature studies, the schools are keeping pace. We find "nature tables" in many kindergartens, and "nature rooms" in numerous schools. The children are encouraged to bring to school or to tell about the simplest sort of discoveries they make in the realms of plant or animal life. And thanks to the publishing houses which recognize the desirability of inspiring and intensifying an interest in nature, parents can aid the schools in their "crusade." Here are a few of the newer books which should both whet a child's curiosity and help to satisfy it, regarding the wonders of the earth.



## BIRDS WE KNOW

By Margaret Friskey, *Childrens Press*, Chicago, 1954. 8 1/2 x 7 1/2 in., 47 pp. Illustrated by Anna Pistorius. \$2.00.

Here is another of the delightful "True Books" which are designed to deepen a child's interest in the world around him while he is just beginning to read. The color plates by Anna Pistorius are beautiful; children and their parents

are bound to be attracted to a book so handsomely illustrated and designed. The text though simple in vocabulary describes how different types of birds are equipped for the kind of life they live, how different styles of nests are built, and how babies are cared for.

Young readers will be stimulated by the short concluding chapter, "Nobody knows everything about birds!"

## OLIVER BECOMES A WEATHERMAN

By Jack Bechdolt, *Julian Messner*, New York, 1953. 8 1/2 x 5 3/4 in., 63 pp. Illustrated by Ralph Ramstad. \$1.60.

Since weather forecasting has become a part of television entertainment, many an adult is learning for the first time the fun of keeping track of high and low pressure areas, and knowing why they spell fair or stormy weather. In this story Oliver, an inventive high school boy, decides to set up his own weather bureau; and his arch rival, not to be outdone, promises to control the weather—producing rain or snow on demand. The results are most amusing, but in addition to having fun, the reader learns the essentials for setting up a home weather bureau, and how clouds are seeded.

## HERE COME THE BEARS

By Alice E. Goudey, *Charles Scribner's Sons*, New York, 1954. 7 1/4 x 6 1/4 in., 93 pp. Illustrated by Garry MacKenzie. \$2.25.

The first "bear" to win a child's heart usually is his teddy bear. But in a few years he may learn that Teddy was fashioned after the Australian koala, which is not a bear at all. That may cause him to wonder what *are* the true bears, and how many kinds there are. Here is a book to answer his questions. In narrative form Miss Goudey tells about the grizzly, brown, black, and polar bears. Each family has its own interesting story; and charming pictures by Garry MacKenzie give the proper atmosphere for every one from the woods of the Rocky Mountains to the icy stretches near the North Pole.



## HAUNT FOX

By Jim Kjelgaard, *Holiday House*, New York, 1954. 8 x 5 1/2 in., 220 pp. Illustrated by Glen Rounds. \$2.50.

The leading characters of this heart-warming story of the wilderness are Star, a particularly cunning fox, and Jack Crowley, the youngest of many hunters who are determined to bag the elusive "haunt" fox. As the reader comes to know both the boy and the fox, his sympathy is drawn to each. How can such a tale be resolved satisfactorily when the heart's desire of one "hero" is to destroy the other? The touching climax of the long chase is a real surprise, and one that should give deep satisfaction to boys and girls who love animals.

as much as they love to succeed in their undertakings. Jim Kjelgaard has been writing stories since he was a boy, and his many published books are all concerned with the out-of-doors and its wildlife. This is one of his best, and is highly recommended for children old enough to be hunters and young enough to be read to.

#### HONEYBEES

By John Lewellen, *Childrens Press*, Chicago, 1953. 8½ x 7½ in., 48 pp. Illustrated by Patricia Jackson. \$2.00.

Here is a book designed with delightful imagination to tell what goes on in a honeybee colony. Although it is written in terms simple enough for third-graders to read, it gives fascinating in-

formation with which these boys and girls can stump their parents . . . "Dad, do you know why the U.S. Army Air Force uses an instrument designed like a bee's eye?" "Mother, do you know how bees air-condition their home?" . . . Mother and Dad will do well to preview "The True Book of Honeybees."

#### BRITISH BIRDS BEFORE THE MICROPHONE—Continued from Page 181

time again, with nothing but the sound of rustling leaves or the drone of a passing aircraft to reward your patience.

Dr. Koch once used 1,200 discs to get 15 bird calls. It was eight years before he was successful in recording the voice of the green woodpecker, and some birds on the British list still elude him.

Some years ago after days of stalking in his third attempt on the stone curlew, he had everything perfectly lined up, including an obliging bird which performed before his "mike." It was perfect—just what the doctor had ordered. Then, when the stone curlew had departed, it was found that the recording gear had failed!

Many do not appreciate the difficulties in recording sounds from nature. Well-meaning admirers often write urging the doctor to come and record the nightingale which sings in their garden, or maybe it is a robin which performs on the gatepost. Usually such requests are politely refused, for the microphone is a limited instrument and birds are whimsical performers. So sensitive is the microphone that it will pick up the sound of an aircraft four miles away; so insensitive that it will fail to give proper definition and volume to a bird's song 10' yards away.

Hundreds of British ornithologists keep contact with Dr. Koch—peers, farm workers, schoolmasters, solicitors, and clerks. When they have found a likely subject they write to him, but unless the doctor knows his correspondent he makes a careful check. Has the bird been correctly identified? Has its singing post been located? Does he require a recording of that particular bird? Is it well away from man-made noises? Traffic, aircraft, tractors, and factory whistles spoil recordings.

If he is satisfied the doctor gets a weather forecast to check on the wind—high winds kill recordings—and off he goes with his mobile recording gear. Once begun there is no

telling where or when his quest to get the bird will end. Out all night crouched in a hide, stalking through undergrowth, tramping across a moor often wet, cold, and shivering, the doctor never gives up. Repeated failures only serve to stimulate his desire to succeed.

Part of a bird's vocabulary will not satisfy Dr. Koch. He will try to capture its call note, alarm note, and courtship note in addition to its song and other sounds which the species may be capable of producing.

Among his more outstanding achievements which have been permanently portrayed in wax are the call of the avocet, the booming of a bittern, the hatching of a green-shank, and the singing of seals. The last serves to remind us that Dr. Koch does not restrict his endeavors to the avian world though birds are now his principal subject.

In recent years the cry of the cheetah, giraffe, and okapi have been brought to the microphone and some time ago the British public had the doubtful pleasure of listening to a program devoted mainly to cat-calls. In addition Dr. Koch has cavedropped on lovesick lions and court-ing camels. The lowest recording he recalls was one of Adolf Hitler made in 1923, which is no longer in existence.

No small problem of recording the sounds of nature is the financial one. In his earlier years Dr. Koch depended largely on the support of interested patrons. The King of the Belgians and the Queen Mother, Elizabeth, once placed excellent facilities at his disposal, and it was under their patronage that he was able to record the loud grunt of the giraffe which is generally regarded as a mute creature.

Dr. Koch has always thought it possible for a person with a good ear to take natural sounds such as bird song or running water, and to form out of them a sound picture which needs no reasoned explana-

tion. In his latest broadcasts he has brought such sounds to the British public, this new form of entertainment having aroused considerable interest and appreciation, among his growing audience.

Not the least notable of Dr. Koch's distinctions is his highly likeable personality. A neat, dark man with a broad grin, he is always humorous and sometimes childlike in his zest. His full British nationality does not prevent him from having a highly individual version of the English language, which has sometimes led him into embarrassing situations.

In a broadcast on the golden oriole—a fruit-eating bird—Dr. Koch explained that it was the custom on the continent of Europe to cover fruit bushes with veils. Some slight difficulty in pronouncing the "v" and "w" in their proper places led him to assert that the bushes were covered "vith whales." He has always wondered what his listeners made of that slip of the tongue.

Although Dr. Koch can be justly proud of his hundreds of broadcasts, the fact that his work has become a national record—mainly at the behest of the select Linnaean Society—pleases him more than anything else.

His entire collection of recordings has been bought for the British nation by the B.B.C. and, at present, Dr. Koch is engaged in cataloging his work while he continues to make new recordings.

Though his collection of nature recordings is an unrivaled one, Dr. Koch and the B.B.C. will not be wholly satisfied until their listeners have had the opportunity of hearing every British bird.

The present generation of British people is the first to have the sounds of wildlife as a regular part of their entertainment, and the millions who enjoy the "bird-man's" programs owe a debt of gratitude to Dr. Ludwig Koch, who has played a bigger part than anyone else in achieving this end.



# Your CHILDREN

By Shirley Miller

OUR morning mail gets better and better! So much so that we now dash for it before the postman has a chance to ring even ONCE. As an example of some of our Grade-A mail, take our correspondence this spring with Colonel V. V. Bull of Bismarck, N. D.

On March 24th Col. Bull wrote: "Through the Missouri Slope Chapter of the Izaak Walton League of America in Bismarck and Mandan, we are sponsoring a Bird House Building Contest. I enclose a full-page ad about this which recently appeared in our local newspaper and which was paid for by 69 business firms in these two cities. We have also had television and radio programs about this contest. It is reaching much greater proportions than we had anticipated. The idea has spread throughout the state and we find that the grown-ups are as interested in it as the youngsters.

"Approximately 800 school children have entered already and more are coming in daily. With this amount of interest in bird life, we hope to carry this program forward even after the contest is over.

"We propose to give each entrant a prize, and in discussing this with our committee, it came to mind that it would be a great thing to make every entrant a member of the Audubon Junior Clubs so that interest in preserving our bird

life might be kept before them throughout the coming year. I would appreciate having word from you in detail, if, in your opinion, we could combine the activities of our club with your Society in this way."

Naturally Col. Bull got an enthusiastic reply from us, and on April 23rd he wrote: "We finished our Bird House Contest on April 17th with a total of 820 bird houses entered by the children in the area. It is a big success. We are now getting ready to issue memberships in Audubon Junior Clubs to all contestants. Other children that want to join the Club, but did not enter the contest, may do so by just paying 15¢ dues. Please mail me a list of the films that you have that we can rent. I want to show these in our schools, and also have free Saturday morning showings of them at our local theatres. I already have your bird and frog song records and played these on our TV show to advertise this contest."

Colonel V. V. Bull watches Governor Norman Brunsdale present set of Compton's Pictured Encyclopedia to Robert Zimmer, first prize winner, St. Mary's High School, Bismarck, North Dakota.



Jim Lengenfelder  
age 12.



Caroline Braun  
age 9.



Donald Smith  
age 12.

On May 10th, Col. Bull sent us Audubon Junior Club registrations for 820 children, with this further word: "On June 3rd we will award the prizes for our Bird House Building Contest. The Governor of North Dakota will make the official presentations."

The success of this project is so outstanding that we asked Col. Bull for one more letter, telling in more detail how this had all been organized and carried out. Here is his answer of May 12th:

"At the beginning of our program I wrote to another magazine for plans for building bird houses. They advised me to write to you. I then mailed your Society 10¢ for a book of bird house plans. You sent me these plus a lot of pamphlets and folders about all your activities. I sent for a lot of your post cards and other items and used these in the window displays.

"Our local Fire Department, Salvation Army, and many of our cabinet shops then constructed 151 models of bird houses which we also displayed in windows of three of the largest stores in town to create interest and show how to make these. We also made color slides of these models and took them to the various schools in Bismarck and Mandan so that the students could get a good idea about proper construction. Mr. Anderson and I made 78 talks in the schools about this contest.

"After the contest we gave these 151 working models to the Park Commission. They have put these all around the towns—in the city parks, on the grounds of the Home for the Aged (where they have already attracted martins and flickers, much to the delight of these old people) and one large colony martin house has been installed on the Capitol Grounds.

"If we found a child that wanted to enter but did not have material or tools, we sent him to the Salvation Army headquarters where they loaned him tools and furnished him with the necessary material for his bird house. There were 41 contestants in this group and they are



**John Lengenfelder**  
age 14.



**Joseph Schmidt**  
age 11.



**Edward Grainer**  
age 11.



**Donald Benson**  
age 14.

## WINNERS

now working together on other projects through this set-up.

"Entry blanks were furnished to all contestants on which their parents had to signify their approval of the child's entering the contest.

"The program was intended only to cover these two cities but after it was announced in the papers and on television and the radio, many rural schools entered, too, and we had entries from the boys in the State Industrial School at Mandan.

"Each contestant placed a cardboard tag on the bottom of his house with his name, age, grade, address, phone number and the name of his teacher written on it. He then brought his house to the World War Memorial Building in Bismarck on April 16th for judging on April 17th. In addition to giving each contestant a membership in the Audubon Junior Clubs, nine grand winners were selected, and their prizes will be awarded by Governor Norman Brundage on June 3rd.

"To continue the great interest that started with this Bird House Building Contest, we are now working on making a bird sanctuary about 10 miles from Bismarck on a 20-acre tract of ground given us by the State of North Dakota.

"This is going to keep the kids busy during the coming summer months."

COLONEL V. V. BULL  
Grand Pacific Hotel,  
Bismarck, North Dakota  
Yes, our mail gets better and better!



### Colonel Bull's Frog

*Reprinted from the Bismarck Tribune,  
March 24, 1954*

Earlier this week sportsmen Earl Cybert and "Colonel" V. V. Bull of Bismarck presented a television program consisting in part of a recording of frogs croaking and chirping.

After the show they adjourned to Bull's room in the GP hotel where they were playing the records for friends who had missed the telecast.

Soon the telephone rang and the desk clerk's voice said, "Are you all right Mr. Bull? We've had several reports from other guests who passed your door and heard some queer noises."

### Woodpeckers And Utility Poles

From time to time the National Audubon Society receives reports of damage to power and telephone poles from excavations by pileated woodpeckers. Sometimes the poles are sufficiently weakened to require replacement. Most poles are treated so as to be sterile of insect life, hence it is assumed that the birds usually are excavating for nesting sites rather than searching for food. One company had to replace 32 poles during one year, some with excavations 9 inches deep and 5 inches wide. Damage is usually confined to poles near woodland areas.

Many companies have gone to considerable expense to solve the "woodpecker problem." Protected by both federal and state laws, pileated and other woodpeckers are recognized as forest conservationists because of the important part which they play in controlling insects that attack trees.

Thinking that the readers of *Audubon Magazine* might have some good ideas, the Osmose Wood Preserving Company, 980 Ellicott Street, Buffalo 9, New York has offered to award \$100 for "the best commercially practicable idea to prevent woodpeckers from impairing standing pole strength that would prove itself in the field over a six month period of continuous use." It is suggested that proposals which have already been tested in the field, such as artificial snakes, owls, sections of old poles, etc., not be submitted.

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Each club receives a subscription (5 issues a year) to this nature magazine for boys and girls, a portion of which is written by Club members themselves.



### 3. **Nature Program Guide Supplement**

New this year! Especially written to aid club leaders in making vital use of this Club program in their own teaching and leadership programs.



## Each Boy and Girl in an Audubon Junior Club Receives a Membership Button — and the NEW 16-page Audubon Junior Club Notebook (11" x 8½")

certifying that Club members are also Junior Members of the National Audubon Society.



This is real news! This Notebook contains fascinating stories about (1) a Marsh, (2) a Meadow and (3) a Forest, each illustrated with cut and paste colored pictures of birds, flowers and animals found in these habitats, plus a full-page outline drawing for coloring of each habitat. There is also space for each child to write his own story of a visit to these habitats, keep his own Nature Calendar, and detailed instructions for making 3-dimensional pictures of each story. This Notebook is planned for easy correlation with Elementary Science, Oral and Written English, Art, Social Studies and Geography.

Any group of ten or more children, plus an adult leader, may form a Club. Each group as a whole pays a registration fee of \$1.00, and each boy and girl in the club pays individual dues of 15¢. The Club leader sends the \$1.00 registration fee plus the dues for each member to



## AUDUBON JUNIOR CLUBS

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